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ABSTRACT

This illustrated guide was designed to help parents understand: (1) how blood cholesterol in children is related to heart disease later in life; (2) which children should get their cholesterol tested and what to expect afterwards; (3) how the whole family can eat in a low-saturated fat, low-cholesterol way; and (4) how to help children follow a prescribed diet to lower cholesterol. The theme reflected throughout the manual is that changes in eating patterns help lower blood cholesterol levels and prevent heart disease. The booklet is organized into two chapters. The first, "Cholesterol is a Family Affair," covers how blood cholesterol affects heart disease, what affects blood cholesterol levels, and when a child may need a cholesterol test. The second chapter, "Make Heart-Healthy Eating a Family Routine," covers shopping for foods that are low in saturated fat and cholesterol, heart-healthy meals and snacks, recipes and healthy fast foods, and sample menus. Appendices provide lists of foods to choose or to decrease, methods for figuring saturated fat and total fat in grams, and charts for tracking the child's current eating patterns and exercise schedule. (LL)

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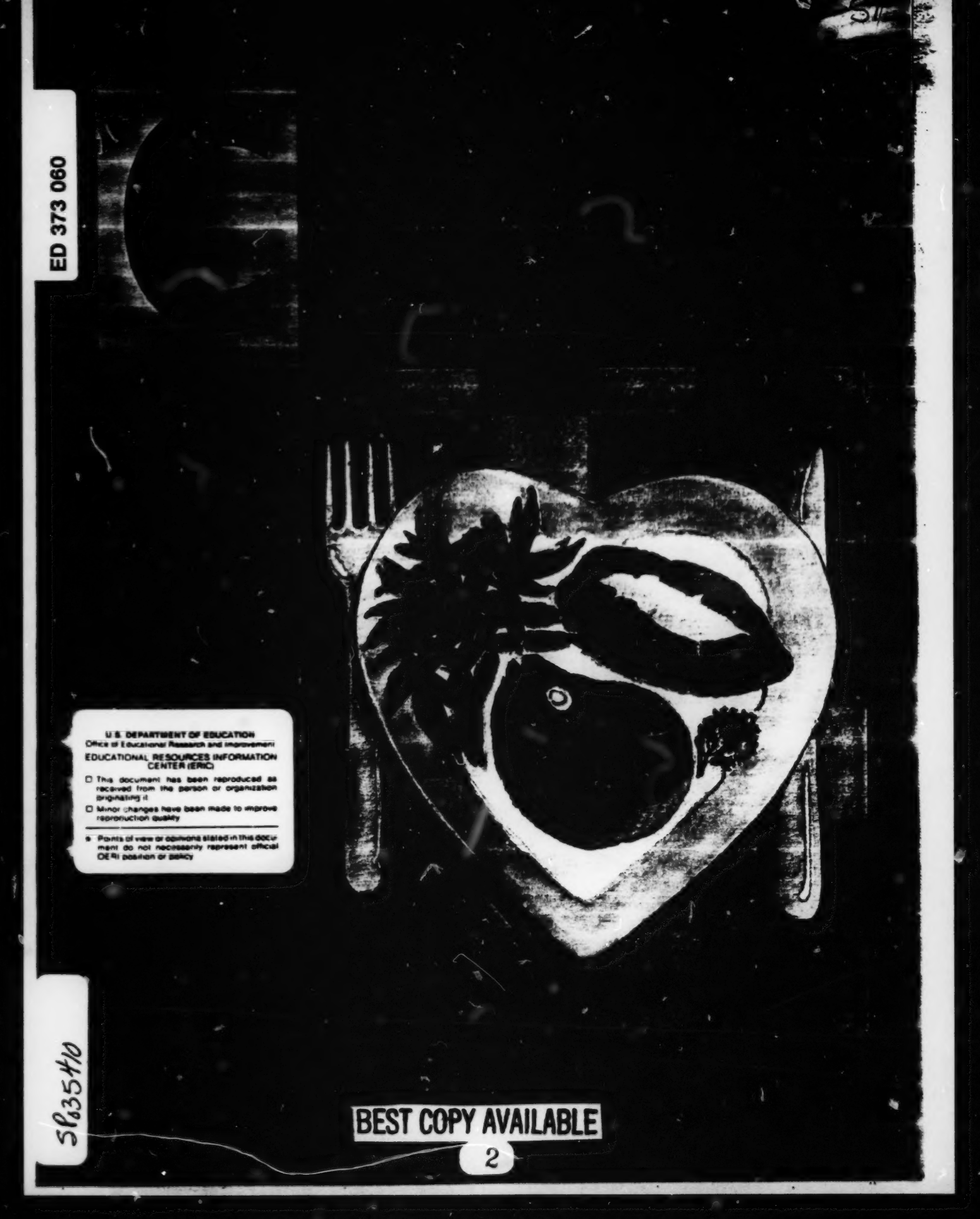

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The information contained in this publication should not be used as a substitute for the medical care and advice of your physician. There may be variations in treatment that your physician may recommend based on the individual facts and circumstances.

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This booklet will help you understand:

- How blood cholesterol in children is related to heart disease later in life.
- Which children should get their cholesterol tested and what to expect afterwards.
- How the whole family can eat in a low-saturated fat, low-cholesterol way.
- How to help your child follow a prescribed diet to lower cholesterol.

This booklet describes changes you and your family can make in your eating patterns to help lower blood cholesterol levels and prevent heart disease. **Please note that these changes apply to children ages 2 to 19. Medical authorities agree that infants under age 2 years should not be placed on cholesterol-lowering diets.**

This guide is part of a series. Other booklets in the series are for 7 to 10 year olds, 11 to 14 year olds, and 15 to 18 year olds. Please see page 43 for ordering information.

Parents' Guide:

Cholesterol in Children

Healthy Eating is a Family Affair.

Cholesterol is a Family Affair

Do you know your blood cholesterol level? Is it high?

Your child's blood cholesterol level can be related to your level. If you have high blood cholesterol or heart disease, there is a greater chance that your child has high blood cholesterol. Children whose blood cholesterol levels are high, in general, tend to have higher levels as adults and be at greater risk for heart disease. That is why controlling blood cholesterol levels is a family affair.

All healthy Americans, 2 years of age or older, should eat in a way that is low in saturated fat and cholesterol. We now know that eating this way lowers blood cholesterol levels and reduces the risk of heart disease.

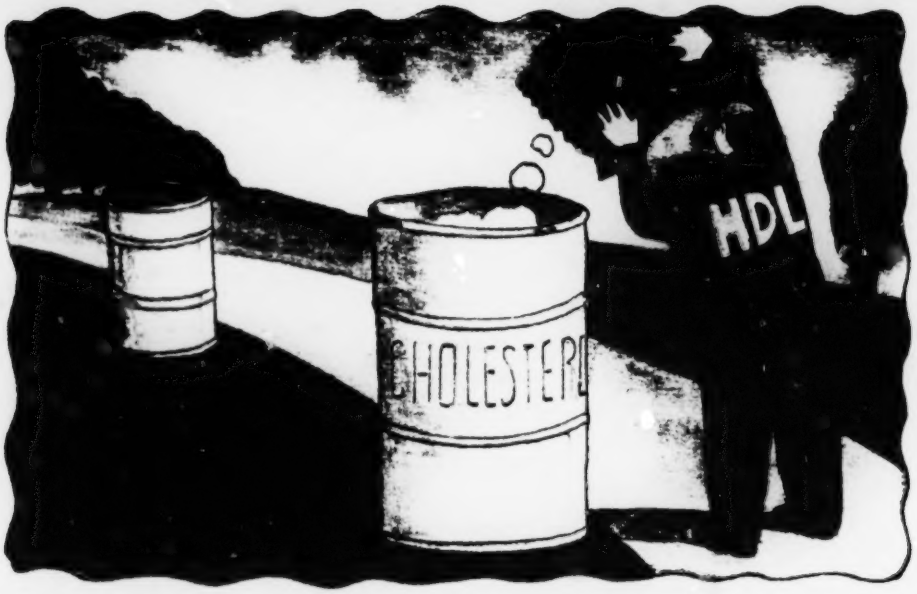
Heart disease is still the number one killer of both men and women in the United States. More than 6 million Americans have symptoms of heart disease. High blood pressure, smoking, and obesity, as well as high blood cholesterol increase your risk of getting heart disease. The good news is that you can change these risk factors and reduce your family's risk of heart disease.

How Does Blood Cholesterol Affect Heart Disease?

Heart Disease Has Its Start Early in Life

Atherosclerosis may start very early in life, yet not produce symptoms for many years. Over the years, cholesterol and fat build up in the arteries. This narrows the arteries and can slow or block the flow of blood to the heart. This process is known as "atherosclerosis." Most heart attacks are caused by a clot forming at a narrow part of an artery which cuts off the blood and oxygen supply to the heart muscle. Most coronary heart disease is due to blockages in these same arteries.

We know that lowering blood cholesterol in adults slows the fatty buildup



Two lipoproteins that carry cholesterol in the blood are low density lipoproteins (LDLs) and high density lipoproteins (HDLs).

in the walls of the arteries and reduces the risk of heart disease and heart attack. Lowering blood cholesterol levels in children is likely also to help reduce their risk of heart disease when they become adults.

Cholesterol: Your Body Needs It And Makes Its Own

Cholesterol is a soft, waxy substance. Your body needs cholesterol to function normally. Cholesterol is present in all parts of the body, including the brain, nerves, muscle, skin, liver, intestines, and heart. It is a part of cell membranes. And it is important for the production of hormones, vitamin D, and bile acids—which help to absorb fat.

Your blood cholesterol level is affected not only by the saturated fat and cholesterol in your diet, but also by the cholesterol made in your liver. In fact, your body makes all the cholesterol it needs. The saturated fat and cholesterol in your diet only help to increase your blood cholesterol level.

Lipoproteins Carry Cholesterol in Your Blood

Cholesterol travels in your blood in packages called lipoproteins. They are often referred to as LDLs and HDLs.

- LDLs—Low density lipoproteins (LDLs) carry most of the cholesterol. If your LDL level is high, cholesterol and fat can build up in your arteries and cause atherosclerosis. This is why LDL-cholesterol is often called "bad cholesterol."

- HDLs—Cholesterol is also packaged in high density lipoproteins (HDLs). HDLs carry cholesterol back to your liver. Here it is processed or removed from your body. Removal helps prevent cholesterol from building up in your arteries. So, HDLs are often referred to as "good cholesterol."

Blood cholesterol levels are influenced by:

- Diet
- Weight
- Physical activity
- Smoking
- Genetic factors
- Sex/age
- Alcohol

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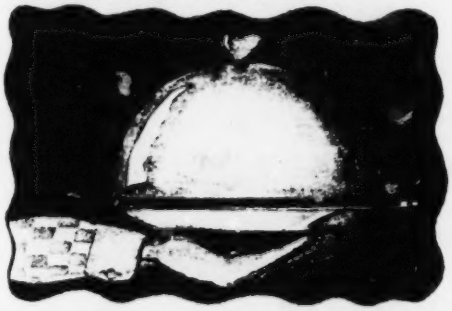
What Affects Blood Cholesterol Levels?

Many Factors Influence Blood Cholesterol Levels

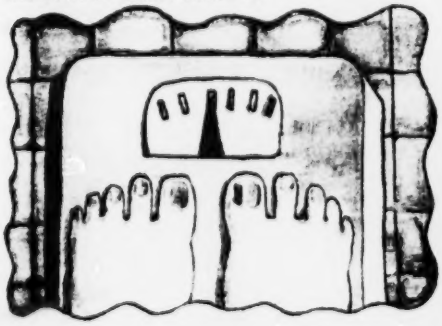
Diet. Among the factors you and your family can do something about, diet has the greatest effect on blood cholesterol levels.

- Saturated fat raises blood cholesterol levels more than anything else you eat.
- Dietary cholesterol also increases blood cholesterol levels.

Changing your family's way of eating will be a very important step to control or lower blood cholesterol.



Weight. In children, as in adults, obesity is related to increased total blood cholesterol levels. Losing weight has been shown to lower these levels. Children who are obese are more likely than other children to become obese adults. Obesity, by itself, also increases the risk of heart disease.

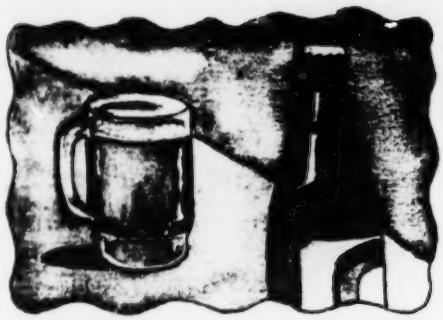


Physical activity. Regular exercise throughout life is associated with a lower risk of heart disease. We also know that regular exercise may help control weight and increase HDL-cholesterol. Aerobic exercise helps strengthen the heart and improve the circulatory system as well.

Smoking. Cigarette smoking is related to lower HDL-cholesterol levels, and also increases the risk of heart disease.

Genetic factors. Genes, i.e., heredity, play a major role in determining blood cholesterol levels and how well your child will be able to lower the level by diet. Because of their genes, a very small number of people have a high blood cholesterol level even if they eat a cholesterol-lowering diet.

Sex and age. In the United States, the average total cholesterol level in children is about 160 mg/dL. At birth, total cholesterol levels are about 70 mg/dL and rise to between 100 to 150 mg/dL during the first few weeks of life. At 2 years of age, these levels increase to about 160 mg/dL in boys and to 165 mg/dL in girls. They stay at about these levels until puberty. Between 12 and 18 years, total cholesterol in boys declines slightly to about 150 mg/dL. Levels in girls also decline slightly. At age 20, blood cholesterol levels in both men and women start to rise.



Alcohol. You may have heard that modest amounts of alcohol can improve HDL-cholesterol levels. However, it is not known whether this protects against heart disease. Because drinking alcohol can have serious harmful effects, it is not recommended as a way to prevent heart disease.

Shared Habits and Genes

Families share similar habits including eating, exercise, smoking, and drinking. Families also share similar genes. The shared habits and genes influence

- Eat foods lower in saturated fat and cholesterol. This will help to lower blood cholesterol levels and maintain a healthy weight. In fact, most people are able to control or lower their blood cholesterol levels by eating this way.
- Exercise regularly.
- If you smoke, **STOP**. As your child's role model, help him or her avoid taking up the habit.
- Be aware that friends, fads, and advertising also influence eating, exercise, smoking, and other habits.

As a parent, help your entire family eat in a way that is low in saturated fat and cholesterol to lower blood cholesterol levels.

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Other risk factors for heart disease in children:

- Cigarette smoking
- High blood pressure
- Obesity
- Diabetes
- Physical inactivity

cholesterol levels in families. Clearly, as a family you can do something about your shared habits. See the box on page 5.

Does Your Child Need a Cholesterol Test?

As a Parent, You Need To Know Your Cholesterol Level

If your blood cholesterol was ever "high" (240 mg/dL or greater), your child's blood cholesterol level will need to be checked. Check the chart to the right to see what your cholesterol level means. Any cholesterol level above 200 mg/dL, even in the "borderline-high" group, increases your risk for heart disease. Levels less than 200 mg/dL put you at lower risk.

Most Children Do Not Need To Have Their Cholesterol Levels Checked

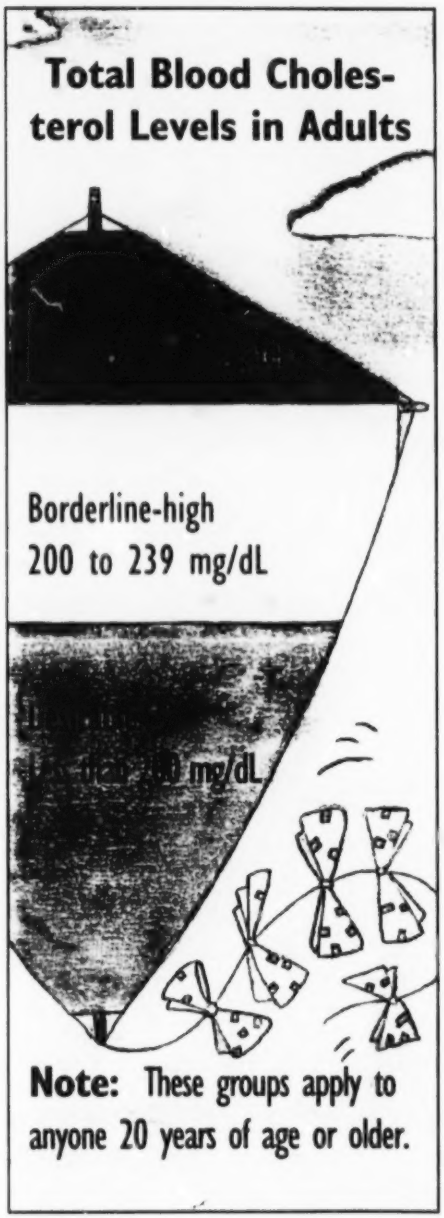
Most children do not need to have their blood cholesterol tested. The National Cholesterol Education Program and the American Academy of Pediatrics agree that children, 2 years of age or older, and teenagers should have their blood cholesterol levels measured if they have *one* of the following:

(1) At least one parent who has ever had high blood cholesterol (240 mg/dL or greater).

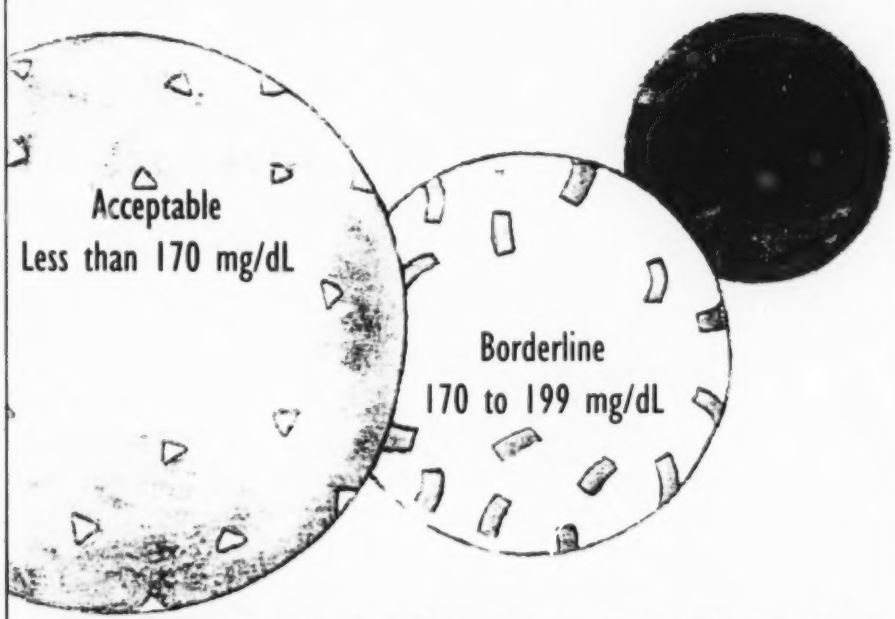
(2) A parent or grandparent who got heart disease before 55 years of age.

(3) Parents whose medical history is not known, especially in children with other risk factors for heart disease (see margin at left).

Getting your child's total cholesterol level measured is easy and can be part of a regular visit. The doctor will take a small sample of blood from the finger or arm. Your child can usually eat and drink before this test. The illustration on page 7 can help you understand your child's total blood cholesterol test.


Total Blood Cholesterol Levels in Adults
Borderline-high
200 to 239 mg/dL
Note: These groups apply to anyone 20 years of age or older.

Total Blood Cholesterol Levels in Children and Teenagers from High Risk Families



Note: These groups apply only to children ages 2 to 19 years who have a parent with high blood cholesterol or a family history of early heart disease.

Even if you do not know your blood cholesterol level or your family history for heart disease, your doctor may measure your child's cholesterol level. If your child's cholesterol is high, heart disease may run in your family. So, be sure to ask your doctor to measure your cholesterol level too. Your spouse and any other children in the family should also have their levels checked. All family members who have an elevated cholesterol level need to take steps to lower it—it is a family affair.

Some children with high blood cholesterol grow up to be adults with normal levels. That's why not all children need to have their cholesterol tested. But children with a family history of high cholesterol or early heart disease who have high cholesterol levels are at increased risk of heart disease as an adult. That's why these children need to be tested. If their blood cholesterol is high, they can begin taking steps to lower their levels.

What Is a Cholesterol Profile?

The "cholesterol profile" is a detailed set of blood measurements. It includes measurements of LDL-cholesterol, HDL-cholesterol, and triglyceride levels. This is done because LDL and HDL provide more accurate information on the risk of getting heart disease.

Your doctor should check your child's cholesterol profile if:

- Your child's total cholesterol is "high" (200 mg/dL or greater).
- Your child's total cholesterol level is "borderline" (170 mg/dL or greater) after two measurements are averaged, or
- A parent or grandparent had heart disease before age 55.

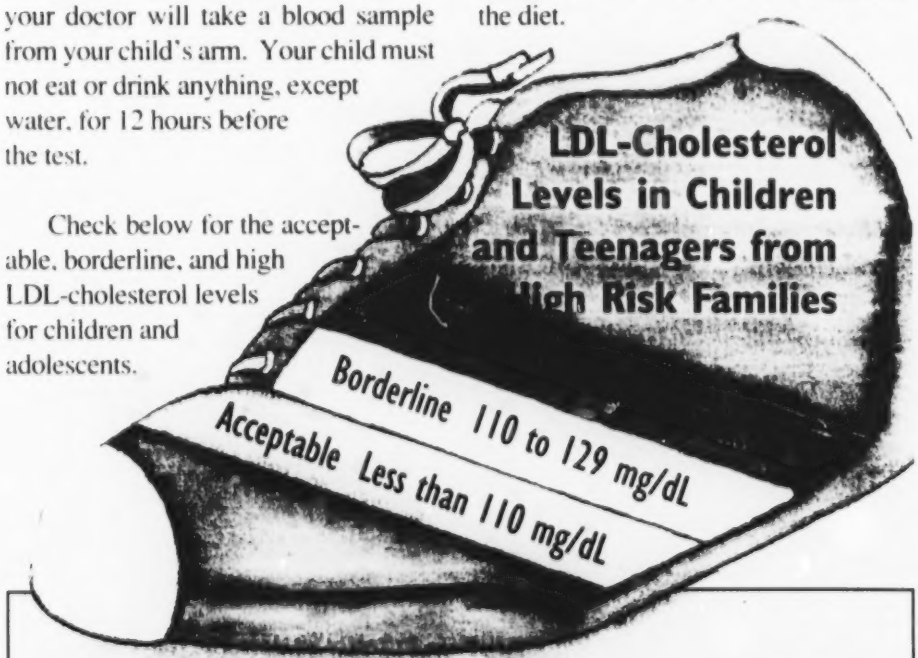
In order to do a cholesterol profile, your doctor will take a blood sample from your child's arm. Your child must not eat or drink anything, except water, for 12 hours before the test.

Check below for the acceptable, borderline, and high LDL-cholesterol levels for children and adolescents.

Next Steps Based on Your Child's Cholesterol Level

Acceptable. Children with an acceptable total or LDL-cholesterol level should adopt the same eating pattern as all healthy Americans, namely one lower in saturated fat and cholesterol. This will help keep their cholesterol level low.

Borderline and High. If your child's total cholesterol level is either high or borderline, your doctor will likely do a cholesterol profile. This will show your child's LDL-cholesterol level. If the LDL level is high or borderline, your child will require a Step-One Diet. This diet is basically the same eating pattern suggested for all healthy children. However, children given the Step-One Diet will have to follow the eating pattern more closely. The doctor will check their cholesterol levels more often to see how they are responding to the diet.


LDL-Cholesterol Levels in Children and Teenagers from High Risk Families
Borderline 110 to 129 mg/dL
Acceptable Less than 110 mg/dL

Note: These groups apply only to children ages 2 to 19 years who have a parent with high blood cholesterol or a family history of early heart disease.

A few children who are not able to lower their cholesterol level enough may need the Step-Two Diet. This diet is lower in saturated fat and cholesterol to help produce the biggest change. Information about the Step-One and Step-Two Diets begins on page 12.

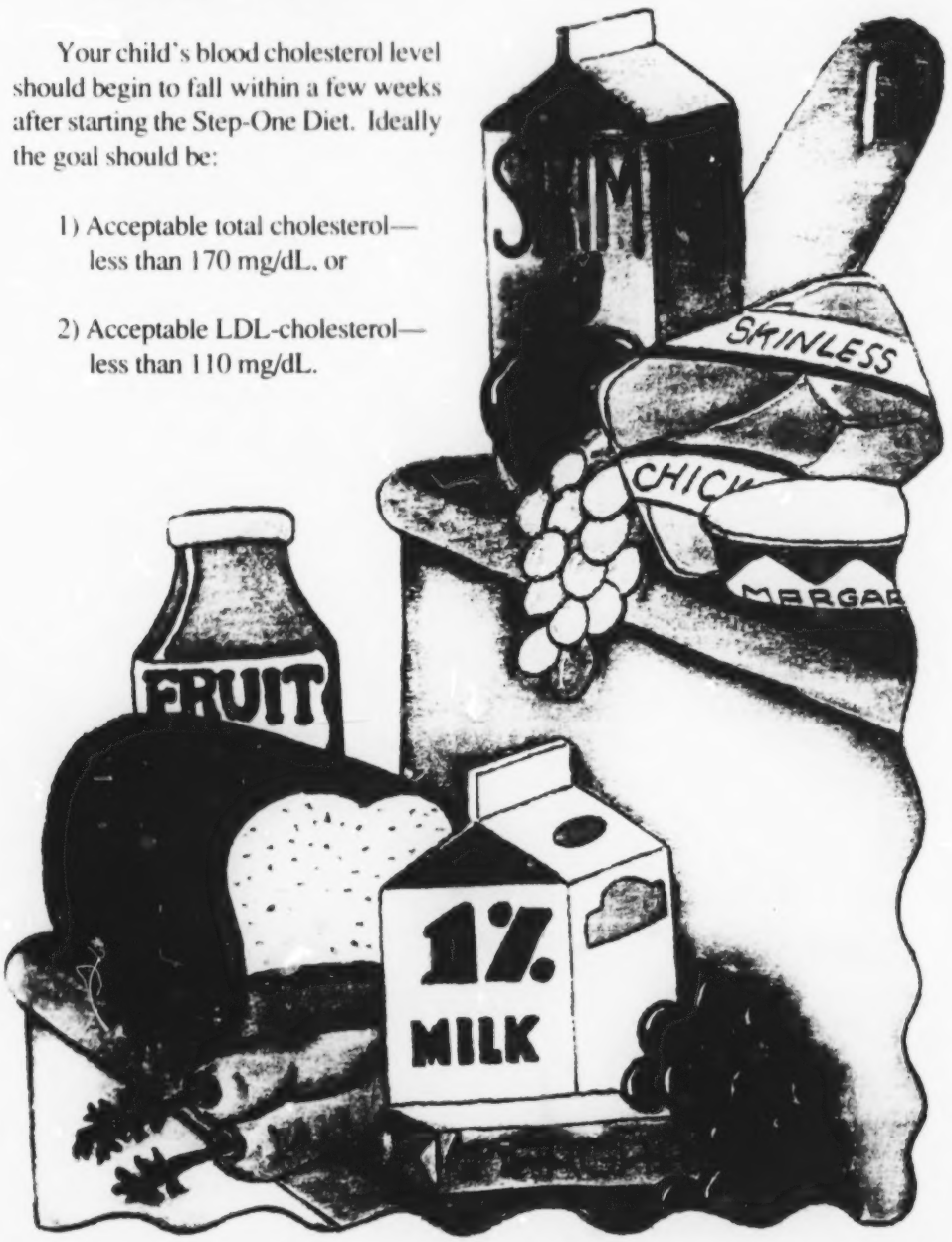
Aim for Acceptable Blood Cholesterol Levels

Your child's blood cholesterol level should begin to fall within a few weeks after starting the Step-One Diet. Ideally the goal should be:

1) Acceptable total cholesterol—less than 170 mg/dL, or

2) Acceptable LDL-cholesterol—less than 110 mg/dL.

After starting the Step-One Diet, your doctor will most likely check your child's cholesterol level on a regular basis. If the goal is not met after a certain period of time on the Step-One Diet, your doctor will likely have your child try the Step-Two Diet. If the goal is still not met after 6 months to 1 year on the diet, some children with extremely high levels may need to be given drugs along with the diet.



All healthy Americans over the age of 2 should follow heart-healthy eating patterns to lower blood cholesterol levels.

Help children develop healthy habits early in life.

Make Heart-Healthy Eating A Family Routine

What your family eats has a large impact, not only on their blood cholesterol levels, but on their general health as well. All children and teenagers need to eat a nutritious diet. They need to eat a variety of foods that provide enough calories and nutrients—carbohydrates, protein, fat, vitamins, and minerals. This helps them grow and develop properly. It is also important as they become more physically active. A nutritious and "heart-healthy" diet is also low in saturated fat, total fat, and dietary cholesterol. As you know, this type of diet is important to lower blood cholesterol and maintain it at acceptable levels.

Did you know that what parents eat influences what their children eat? Do you make a habit of eating fatty fried foods or rich, high-fat desserts? Children learn these eating patterns early in life. They learn to enjoy the taste of high-fat foods. They can also learn to enjoy the taste of fruits, vegetables, and grains if you show them how. Changing established eating habits can often be difficult for you and your children, especially teenagers. It is much easier to start by making changes at home that everyone in your family over 2 years old can follow. Buy and prepare foods low in saturated fat, total fat, and dietary cholesterol for the whole family.

Help Your Child Eat Right And Exercise

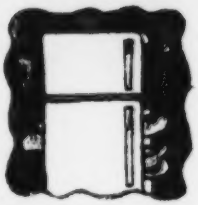
Telling children and teenagers to eat right and exercise is good; showing them is better. Here are some tips to help your children develop healthful habits.

Be a model. Set a good example. Adults, particularly parents, are a major influence on children's behavior. Children are also influenced by television, radio, magazines, newspapers, ads, friends, brothers and sisters, and others who may not conform to your ways. So, eat a heart-healthy diet and your children will be more likely to do the same. Exercising with your child also sets a good example.

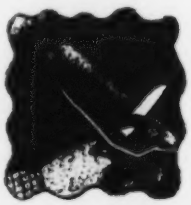
Know the dietary guidelines to lower blood cholesterol. Knowing how diet, blood cholesterol and heart disease are related will help you guide your family to lower their blood cholesterol levels. Knowing the basics on choosing foods low in saturated fat, total fat, and cholesterol is important to your success.

Know the food groups. Know the food groups and the low-saturated fat, low-cholesterol choices within each group. This will help you buy and provide such foods and snacks at home.

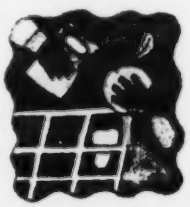
Stock the kitchen. Stock the kitchen with low-saturated fat, low-cholesterol foods from each of the food groups. Prepare these foods in large quantities to be frozen for quick use later. Foods such as casseroles, soups, and breads can be frozen in individual servings for a quick meal. The whole family will then have low-saturated fat, low-cholesterol meals on hand. Teach children how to choose healthy snacks.



Teach basic food preparation skills. Teach children how to clean vegetables, make salads, and safely use the stove, oven, microwave, and toaster. Children who have basic cooking skills appreciate food more and are more inclined to try new foods.



Let children help. Let children help with or even do the grocery shopping. The supermarket is an ideal place to teach children about foods. Teach them how to read food labels. Involve children in meal planning and preparation. Encourage them to prepare snacks, bag lunches, and breakfast. This will help them become responsible and fulfill a need for independence.



Plan family meals. Eating meals together as a family can really help foster heart-healthy eating habits in children. The more you create a "family setting" where everyone shares the same nutritious meals, the more children will accept healthful eating as a way of life. Try to maintain regular family meals every day—breakfast, lunch or dinner, or all three. This

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General Steps to Lowering Blood Cholesterol Levels*

- Eat fewer foods high in saturated fat.
- Eat fewer high-fat foods.
- Eat fewer high cholesterol foods.

way, the whole family can learn about healthful eating and build good eating habits.

Encourage physical activity. Make time for physical activity. Encourage children to get some exercise throughout the day and especially on the weekends. Take trips that involve activities like hiking, swimming, and skiing. Join in the fun. Ride bikes, run, skate, or walk to places close by. Give your child a splash or dance party. Use your backyard or park for basketball, baseball, football, badminton, or volleyball.

Know the Dietary Guidelines for Lowering Blood Cholesterol Levels

In order to help your family eat in a way that is lower in saturated fat and cholesterol, you need to know some dietary guidelines. They are consistent with the "Dietary Guidelines for Americans" and include choosing a variety of foods that provide the following nutrients:

- Less than 10 percent of calories from saturated fat,
- An average of no more than 30 percent of calories from fat,
- Less than 300 milligrams of dietary cholesterol a day,
- Enough calories to support growth, and to reach or maintain a healthy weight.

The whole family (except infants under 2 years who need more calories from fat) should follow these guidelines. This may look complicated, but you will soon see that it is really easy if you take some general steps shown on this and the next page.

These guidelines are basically the same as the Step-One Diet. The Step-Two Diet, however, is different because it is lower in saturated fat and cholesterol as shown below:

- Less than 7 percent of calories from saturated fat,
- Less than 200 milligrams of dietary cholesterol a day.

If you want to check whether you are following the above guidelines, see the appendix on page 50. Briefly, each gram of fat (of any type) provides 9 calories per gram. So, if your

child eats 1,800 calories per day, 10 percent of those calories from saturated fat is equal to 20 grams of saturated fat allowed per day. This information is provided because food labels list fat information in grams, not percent of calories.

Remember, the Step-One and Step-Two Diets are recommended for children with elevated blood cholesterol levels. If your doctor prescribes one of these diets, help your child to follow it closely. Registered dietitians or qualified nutritionists can provide additional information to help children and their families adjust to this way of eating and still include some favorite foods.

Eating Patterns Help Your Child Follow the Guidelines

Following the dietary guidelines to lowering blood cholesterol levels can be easy if you think of them in terms of food. Foods make up your eating patterns. So, knowing the foods to choose is the first step. The appendix, "Foods to Choose and Decrease," lists those foods lower in saturated fat, total fat, and cholesterol as the foods to "choose." Choosing these foods from each of the food groups every day will help assure that your family is following the guidelines recommended for all healthy Americans. And, eating a variety of foods will help assure your child is getting all of the nutrients needed for growth. Don't worry about whether your child eats specific numbers of servings from each group every day as long as your child's cholesterol level is in the acceptable range.

The appendix also lists specific eating patterns to help meet the Step-One and Step-Two Diets recommended for children with elevated levels. The eating patterns for these two diets are provided by food group with serving sizes (ounces, cups, teaspoons) and listings of the number of servings. Note that the patterns depend on the child's age and sex.

These patterns are only examples and should be adjusted according to your child's weight, level of activity, and food preferences. This is especially important to younger children. Children ages 2 to 3 are gradually starting to eat like the rest of the family. Once your child is put on the Step-One or Step-Two Diet, allow him or her time to grow into the pattern. Be flexible, yet encourage your child to eat enough of the right kinds of foods. Remember, these diets can also be enjoyed by the whole family.

Shop for Foods That Are Low in Saturated Fat and Cholesterol

Stocking your kitchen with a variety of foods that are low in saturated fat, total fat, and cholesterol will help you and your family eat in a heart-healthy way. These heart-healthy choices are described by food group beginning on this page and summarized in the appendix. You will find this information very helpful when making out your shopping list. Reading labels is an important step in heart-healthy grocery shopping. See page 28 for more help with label reading.

Food Groups

Meat, poultry, fish, and shellfish are important sources of protein and other

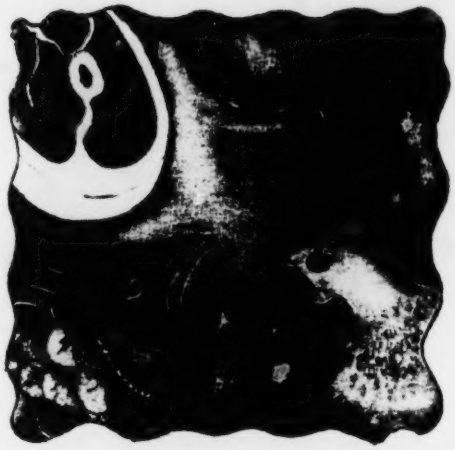
- Choose foods high in complex carbohydrates (starch and fiber).
- Eat adequate calories to promote growth and development and to maintain healthy weight.

*ADAPTED FROM: Nutrition and Your Health: Dietary Guidelines for Americans, USDA/DHHS, 1990.

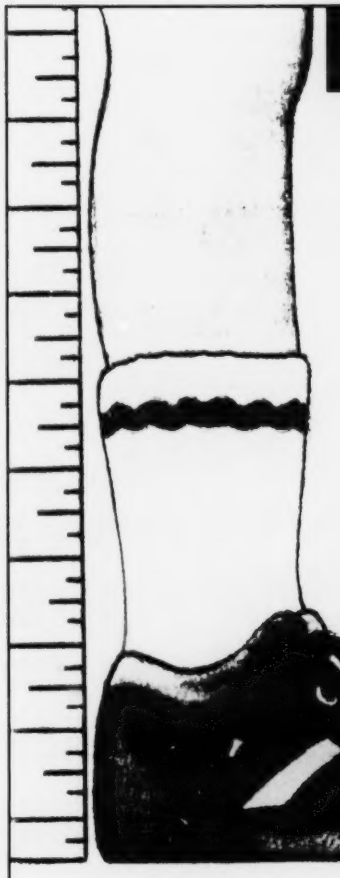
Choose leaner meats, chicken, turkey, and fish more often.

nutrients in your child's diet. They also provide saturated fat and cholesterol. Examples of lean and fatty choices are shown in the table on page 16. Lean cuts of beef, such as top round, are lower in saturated fat and cholesterol than fattier cuts such as regular ground beef. Chicken without skin has less saturated fat and less total fat than chicken with skin. And even though two chicken hot dogs have a lot less saturated fat than beef hot dogs they have more saturated fat than even chicken with the skin. Fish such as haddock has less saturated fat and cholesterol than either chicken or beef. And, foods with less fat contain fewer calories as well.

To help lower your child's blood cholesterol level, choose leaner meats as



well as chicken, turkey, fish, and shellfish more often. Remember, all of these foods contain some saturated fat and cholesterol. So, the number of servings and serving size your child eats are also important. For variety, consider dry beans or legumes as a main dish instead



Calories

Children and teenagers need calories to grow and develop. The suggested eating patterns are not low in calories, although they are low in saturated fat, total fat, and cholesterol. Some calories from fat are replaced by calories from carbohydrates to maintain normal growth. Do not restrict your child's calorie level while on a low-fat diet. This can cause growth problems. Children with high blood cholesterol who follow the Step-One or Step-Two Diet should be followed closely by their doctor.

Obesity

Most children who are obese and still growing taller should not lose weight. Instead, they should eat in a way that keeps their weight the same while they continue to grow taller. Obese teenagers who are at their adult height should be encouraged to follow a weight-loss diet under a doctor's care to achieve desirable weight. It's also good to develop lifelong habits of regular exercise to help in weight control.

Saturated Fat

Saturated fat raises your blood cholesterol level more than anything else in your diet. The best way to lower your blood cholesterol level is to reduce the amount of saturated fat that you eat. Animal products are a major source of saturated fat in the average American diet. Butter, cheese, whole milk, ice cream, and cream all contain high amounts of saturated fat. It is also concentrated in the fat that surrounds meat and in the white streaks of fat in the muscle of meat. Poultry, fish, and shellfish also contain saturated fat, although generally less than meat. Some vegetable oils such as coconut, palm, and palm kernel are rich in saturated fat. They are often found in commercially baked goods such as cookies and crackers, cake mixes, and some snack foods like chips, buttered popcorn and candy bars.

Meat, Poultry, and Fish: A Comparison

Product (3 oz. cooked— the size of a deck of cards)	Saturated Fat (grams)	Dietary Cholesterol (milligrams)	Total Fat (grams)	Total Calories
Beef, top round, braised	2	76	4	169
Regular ground beef, baked, well done	7	92	18	269
Beef hot dogs (2)	11	54	26	284
Chicken, broiler/fryer, breast, without skin, roasted	1	73	3	141
Chicken, broiler/fryer, breast, with skin, roasted	2	71*	7	168
Chicken hot dogs (2)	5	90	18	232
Haddock, baked	0.1	63	<1	95
Shrimp	0.3	166	1	84

*On an equal weight basis, chicken without skin has slightly more cholesterol than chicken with skin. That's because cholesterol is found mostly in chicken meat, not the fatty skin. Skinless chicken is still the better choice since it is lower in saturated fat.

To figure calories from fat or saturated fat, multiply grams of fat or saturated fat by 9.

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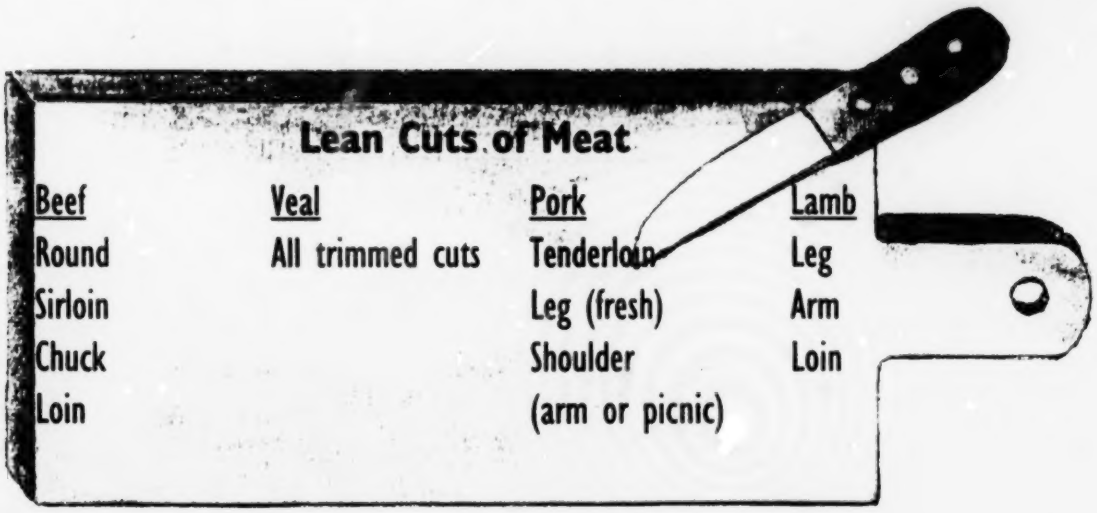

of meat. They are high in protein and very low in fat. Or, stretch small amounts of meat with pasta, rice, or vegetables for hearty dishes.

Meat. Lean cuts of beef, veal, pork, and lamb are available (see the table above). These cuts of meat can be tender and tasty if prepared the right way. Some people think that only the well-marbled cuts of meat (meat with white fat running through it) taste good. However, tasty cuts do not have to be high in fat.

Beef, veal, and lamb cuts are "graded" based on the amount of marbling in the meat. "Prime" is the top grade and has the most fat. "Choice" has less fat and "select" least of all. "Select" grades of meat can also be tender if braised or stewed. Before preparing any meat, be sure to trim the fat off.

Remember, your child's diet can include meat, especially the lean cuts. For teenage girls, who are more likely to get iron deficiency anemia, lean meat is an especially important source of iron.

High-fat processed meats (like bologna, salami, beef or pork hot dogs, and sausage) should be eaten less often. Sixty to eighty percent of their calories come from fat—much of which is saturated. The good news is that a few lower-fat beef hot dogs have recently been developed. Organ meats (like liver, sweetbreads, and kidneys) are relatively low in fat, but are high in cholesterol. They too should be eaten less often—once a month is okay on the Step-One Diet—and even less often on the Step-Two Diet.

Poultry. In general, poultry has less saturated fat than meat, especially when the skin is removed. Chicken and turkey are excellent choices for your family's new eating pattern. When choosing poultry, keep these tips in mind:

- Eat chicken and turkey without skin to reduce the saturated fat.
- Bake, roast, or broil, do not fry.
- In choosing processed poultry products like chicken hot dogs, bear in mind that they contain more fat and cholesterol than fresh chicken. However, some are lower in fat than similar beef or pork products (see the table at left).

Fish and Shellfish. Most fish, such as haddock or halibut, is lower in saturated fat and cholesterol than meat and poultry. Fish also provides protein and other nutrients, so it is a good choice.

Protein and Vegetarianism

Protein is vital to growth and development. An eating pattern low in saturated fat, total fat, and dietary cholesterol does not mean cutting out all animal products or becoming a vegetarian. It means you replace fatty cuts of meat with lean meat, fish, and poultry, and whole-milk dairy products with low-fat or nonfat dairy products.

Vegetarian diets, if well planned, are not low-protein diets and may offer nutrition and health benefits which include lower blood cholesterol levels. But, not enough calories and other nutrients from strict vegetarian diets have caused poor growth and vitamin and mineral deficiencies. Vegetarian diets for children and teenagers require careful thought. Meeting with a registered dietitian can be helpful.

Protein and Building Muscle

Some teenagers, especially boys, believe that protein builds muscle. Most Americans eat more protein than they need. So, eating even more won't necessarily build muscle. Some foods high in protein, such as fatty cuts of meat and whole milk products, are also high in fat and saturated fats. If your teenager insists on eating more protein, choose those high-protein foods that are lower in total fat and saturated fat. Skim milk, for example, has as much protein as whole milk. Carbohydrate foods from the breads, cereals, pasta, rice, dry peas and beans group are important for athletes of all ages and also provide protei

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Shellfish varies in cholesterol content. Some, like shrimp and crayfish, are relatively high, and some, like clams and lobster, are low. All shellfish has less fat than meat, poultry, and most fish. So, shellfish can certainly be eaten occasionally.

Some fish, like tuna, salmon, and mackerel—the high-fat fish—are rich in "omega-3" fatty acids, a polyunsaturated fatty acid. Some people believe that these omega-3 fatty acids, commonly called "fish oils," lower blood cholesterol levels. This does not appear to be the case. However, eating fish is a good choice since it is low in saturated fat. Taking fish oil supplements for treating high blood cholesterol is not recommended. It may lead to undesirable side effects over time.

Whole milk dairy products are major sources of saturated fat and cholesterol. However, dairy products are also a great source of calcium. Children and adolescents need calcium for the proper growth and development of strong bones. Girls, especially, need to eat foods high in calcium. By choosing low-fat, skim, and nonfat dairy products more often than high-fat dairy products you not only cut back on saturated fat and cholesterol but in most cases you get more calcium per serving. Dairy products are often added to foods, like casseroles, pizza, cookies, and sauces. So, even if your children do not eat much cheese or drink much milk, they may be getting quite a lot of high-fat dairy products without knowing it.

Milk. Milk provides many nutrients, especially calcium, that are essential for growth and development. Choose more often either 1 percent or

skim milk instead of whole milk (3.3 percent) or 2 percent milk. The lower fat types provide as much or more calcium and other nutrients as whole milk. Yet they have much less saturated fat and cholesterol and fewer calories. Children over age 2 can drink 1 percent or skim milk and still get the nutrients they need.

Cheese. When people cut back on meat, they often eat more cheese. Most cheeses, particularly those prepared with whole milk or cream, are actually higher in saturated fat than meat or poultry. Cholesterol, however, is about the same in the high-fat cheeses, meat, and poultry. The table on page 20 compares the saturated fat and cholesterol content in chicken, fatty and relatively lean cuts of meat, and some cheeses.

Determining which cheeses are high or low in saturated fat and cholesterol can be confusing. Cheeses are often labeled as part-skim milk, low-fat, imitation, processed, natural, hard, or soft. As a rule, imitation cheeses (made with vegetable oil), part-skim milk cheese, and cheeses advertised as "low-fat" are usually lower in saturated fat and cholesterol than are natural and processed cheeses (which are made with whole milk). However, even part-skim milk cheese and low-fat cheeses are not necessarily lower in fat than many meats.

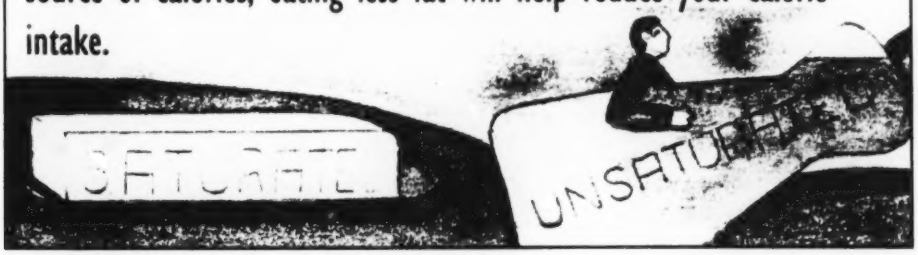
Meat, Poultry, and Cheese: A Comparison

Product (3 oz. serving)	Saturated Fat (grams)	Dietary Cholesterol (milligrams)	Total Fat (grams)	Total Calories
Chicken, broiler/fryer, breast without skin, roasted	1	73	3	141
Beef bottom round, roasted	2	66	6	160
Beef, Porterhouse steak, broiled	8	70	19	260
Low-fat cottage cheese	<1	4	<1	62
Part-skim mozzarella	9	48	14	216
Mozzarella	11	66	18	240
American cheese food	13	54	21	279
Cream cheese	19	93	30	297

To figure calories from fat or saturated fat, multiply grams of fat or saturated fat by 9.

Total Fat

The two major types of dietary fat are saturated and unsaturated. Saturated fats are more likely to be solid, while unsaturated fats are more likely to be liquid. Unsaturated fats are further grouped as either polyunsaturated or monounsaturated fats. In a food, saturated and unsaturated fats together equal total fat. All foods containing fat contain a mixture of fats. All fats regardless of their type provide 9 calories per gram. Carbohydrate and protein provide 4 calories per gram. Because fat is the richest source of calories, eating less fat will help reduce your calorie intake.



Remember it this way:

- Natural, processed, and hard cheeses, like cheddar, Swiss or American, are highest in saturated fat.
- Low-fat and imitation cheeses may have less saturated fat.
- Many meats have less saturated fat than many of these cheeses.

Therefore, when you can, replace natural, processed and hard cheeses with low-fat and imitation cheeses. Read the label.

When your child has the urge for cheese, try the following:

- String cheese.
- Part-skim mozzarella.
- Low-fat cottage cheese.
- Farmer cheese.

If your child is on the Step-One Diet, choose low-fat cheeses that have no more than 6 grams of fat in 1 ounce. If your child is on the Step-Two Diet, choose low-fat cheeses that have no more than 2 grams of fat in 1 ounce.

Choosing Cheese

Step-One Diet	**Step-Two Diet**
6 grams of fat/ounce	2 grams of fat/ounce

Choose low-fat, skim, and nonfat dairy products more often.

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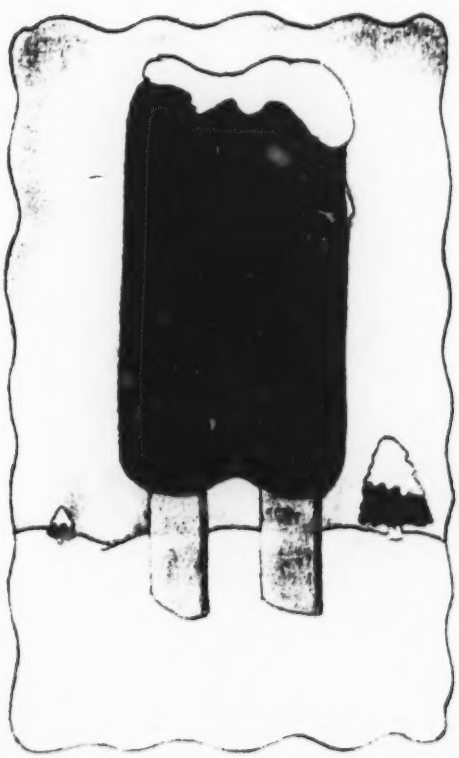
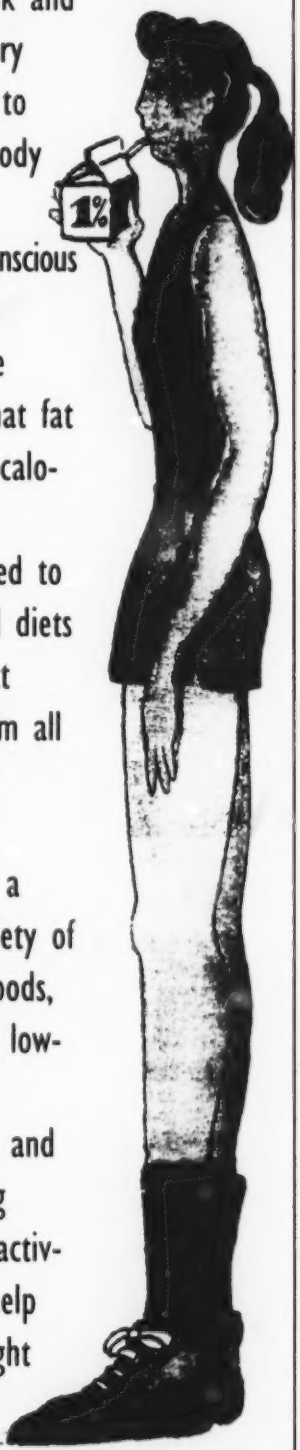
Ice Cream. Children love ice cream. But, ice cream is made from whole milk and cream. It contains a large amount of saturated fat and cholesterol. Try frozen desserts, like ice milk and low-fat frozen yogurt, which are lower in saturated fat. Also try sorbet and popsicles, which contain no fat.

Make-your own ice cream substitutes:

- Tangy yogurt cubes. Combine 6 ounces of undiluted frozen fruit juice concentrate with 8 ounces plain low-fat yogurt and freeze in ice cube trays or paper cups.
- Homemade popsicles. Freeze orange and other juices on a stick.
- Floats. Combine ice milk with carbonated fruit juice.



Teenage girls may often avoid milk and other dairy products to control body weight. Weight-conscious teenagers should be taught that fat provides calories, and encouraged to avoid fad diets and select foods from all the food groups. Choosing a wide variety of low-fat foods, including low-fat dairy products, and increasing physical activity will help with weight control.



Egg yolks are high in cholesterol: each contains about 213 mg. So, they should be eaten in moderation. On the Step-One Diet your child can eat 3 to 4 yolks a week. This includes those in processed foods and many baked goods (see the table on the next page). On the Step-Two Diet your child should eat even less. Egg whites which contain no cholesterol can be eaten freely.

In recipes, whole eggs can be replaced with egg whites. For most cake or cookie recipes, you can substitute egg whites for one to two eggs; in some, up to three to four. Since egg substitutes are made mainly of egg white, they also may be used to replace eggs (all or some) in dishes such as scrambled eggs, omelets, and some baked items.

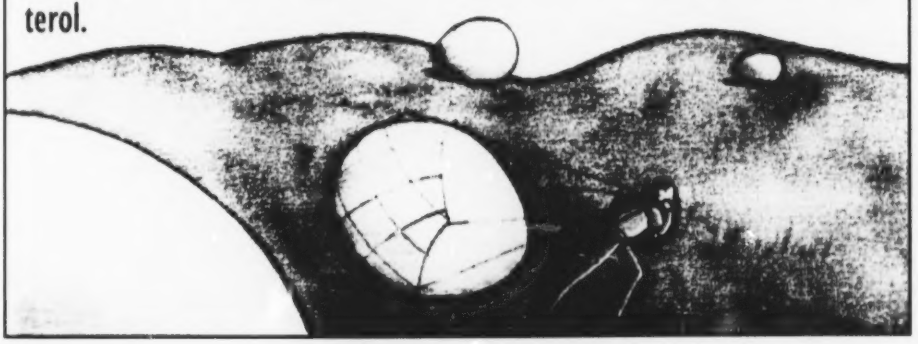
Foods included in this group will be high in either saturated, polyunsaturated, or monounsaturated fatty acids. Lard, fatback, and butter are high in saturated fat. Solid shortenings and some commercial salad dressings contain moderate amounts of saturated fats. So, limit how much you use of these foods, especially in your cooking.

Instead of butter, use margarine since it is higher in polyunsaturated fatty acids. Choose those liquid vegetable oils that are highest in unsaturated fats, like canola (rapeseed oil), safflower, sunflower, corn, olive, sesame, and soybean oils in cooking and salad dressings. When you shop, read food labels. Choose margarines and oils that have more polyunsaturated fat than saturated fat.

Egg yolks are high in cholesterol while egg whites contain none.

Dietary Cholesterol

Dietary cholesterol is found only in foods that come from animals (eggs, dairy products, meat, poultry, fish, and shellfish). Egg yolks and organ meats (liver, kidney, sweetbread, brain) are particularly rich sources of cholesterol. It is not found in any food coming from plants; which means it is never found in peanut butter, bran products, or vegetable oils. Although, different from saturated fat, dietary cholesterol also can raise your blood cholesterol level. So, it is important to eat fewer foods high in cholesterol.



How Eggs Add Up

	Approximate Portion of Whole Egg
Eggnog (about ½ cup)	¼
Cornbread (1/9 of 9"x 9"pan)	¼
Muffin (1)	1/10
Pancakes, 4" (2)	¼
Baked custard (6 oz. custard cup)	½
Chocolate, lemon meringue, or pumpkin pie (⅛ of 9" pie)	⅓
Pound cake (1/12 of loaf)	½
Sponge cake (1/12 of 9" x 9"cake)	⅓
Tapioca pudding (½ cup)	⅓
Yellow or chocolate two-layer cake (1/16 of 9"cake)	⅛
Cheese souffle (1 cup)	½
Chicken salad (½ cup)	⅓
Corn Pudding (½ cup)	½
Omelet (depends on size)	1 to 3
Mayonnaise (¼ cup)	¼
Thousand Island dressing (¼ cup)	⅓

Source: Adapted from Dietary Treatment of Hypercholesterolemia, A Manual for Patients, American Heart Association and National Heart, Lung, and Blood Institute, 1988.

Unsaturated Fats

Unsaturated fat actually helps to lower cholesterol levels when it replaces saturated fat. So, when you can, replace part of the saturated fat with unsaturated fats (polyunsaturated and monounsaturated fats). Unsaturated fats are found mostly in vegetable oils.

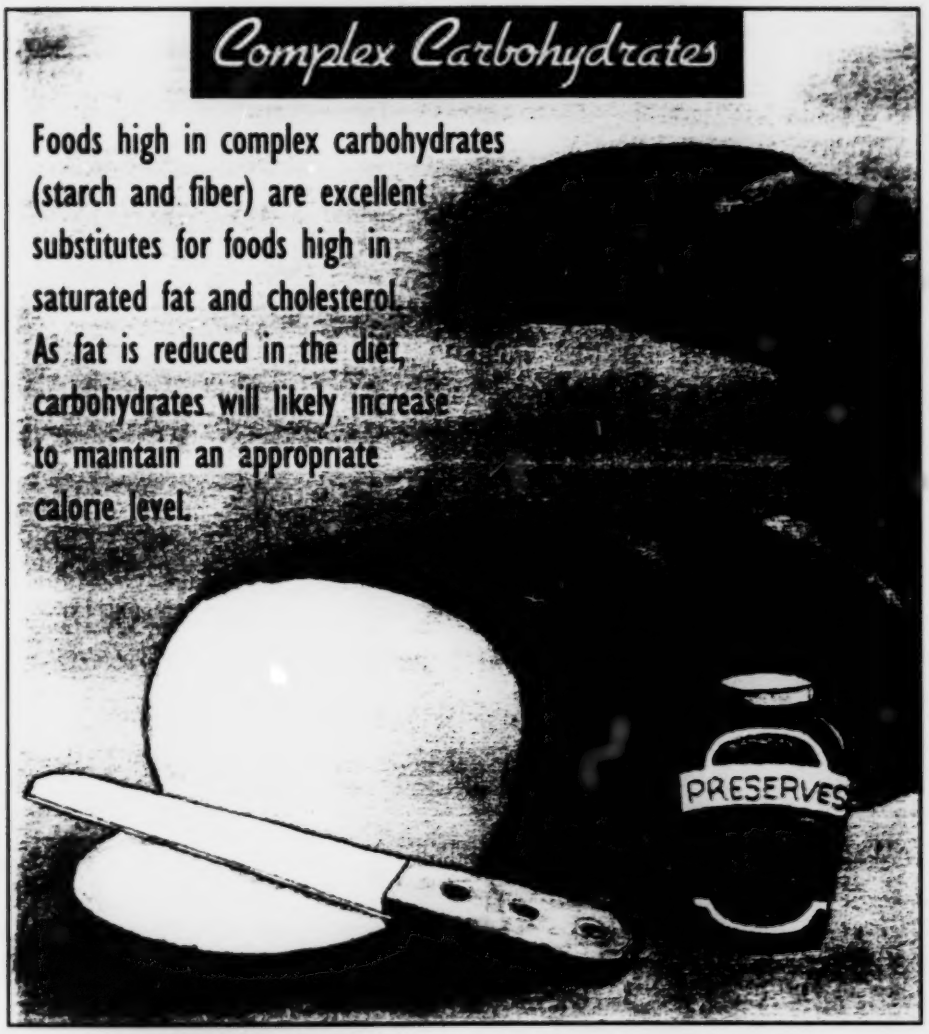
Some vegetable oils, like coconut, palm, and palm kernel oil, are saturated. These vegetable fats, often called "tropical oils," can be found in commercially baked goods such as cookies and crackers, nondairy substitutes such as whipped toppings and coffee creamers, cake mixes, and even frozen dinners. They also can be found in some snack foods, like chips, candy bars, and buttered popcorn. Many companies have removed tropical oils from their products in order to help reduce their saturated fat content.

Also, vegetable oils can become saturated by hydrogenation—a process that makes them solid. They are called hydrogenated vegetable oils.

When choosing foods that contain tropical oils or hydrogenated vegetable oils, read the label before you buy. Choose those products lowest in saturated fat.

Since avocados, olives, nuts, and seeds are high in fat, they are often grouped with fats and oils. Although the fat in nuts and seeds is mostly unsaturated fat, they are very high in calories. They can fit into the eating plan if used in small amounts and not too often. Peanut butter can be a good choice for children's sandwiches, and nuts and seeds can be an after school treat.

Choose fruits, vegetables, bread, cereals, and dry peas and beans more often.


Complex Carbohydrates
Foods high in complex carbohydrates (starch and fiber) are excellent substitutes for foods high in saturated fat and cholesterol. As fat is reduced in the diet, carbohydrates will likely increase to maintain an appropriate calorie level.
PRESERVES

Fruits and vegetables contain no cholesterol, are very low in saturated fat, and are low in calories, except for avocados and olives (see Fats and Oils). Cutting back on high-fat foods cuts out some calories. Eating more fruits and vegetables is a good way for the whole family to replace those calories. Fruits can be a tasty snack or dessert. Even vegetables can be disguised as snacks and interesting side dishes. When chopped into small pieces, vegetables can be added to most favorite recipes without the child even noticing. By eating more of these foods your child can get more vitamins, minerals, and fiber and less saturated fat and cholesterol.

Breads, cereals, pasta, rice, and dry peas and beans are all high in complex carbohydrates and low in saturated fat. Replace foods high in saturated fat with those high in complex carbohydrates.

Your child might like some of the following suggestions:

- Try pasta with tomato sauce, or spaghetti with oil and herbs for supper as the main dish. Add low-fat cheese or small amounts of meat or fish and vegetables for extra punch.

- Combine rice with vegetables or smaller portions of meat, chicken, or fish.

- Use dry peas and beans (like split peas, lentils, kidney beans, and navy beans) as main dishes, casseroles, soups, or other one-dish meals without high-fat sauces. Chili without lots of meat is a good low-fat, one-dish meal.

Cereals, both cooked and dry, are usually low in saturated fat. Some that contain coconut or coconut oil, like many types of granola, are not. In fact, most granolas are high in fat. Compare the cereal labels. Choose those lower in fat, particularly saturated fat.

Most breads and rolls also are low in fat. Choose the whole-grain types for more fiber. Some commercially baked goods, like those listed below, are often made with large amounts of saturated fats.

- Croissants
- Muffins
- Biscuits
- Butter rolls
- Doughnuts

Read the labels on baked goods to figure out their fat content. Instead of buying the high-fat types, you can make your own muffins and quick breads using unsaturated vegetable oils and egg whites or substitutes. In most recipes, you can replace one whole egg with two egg whites.

Foods from this group can be great snacks for children at any age. Instead of snacks high in saturated fat, encourage your child to try low-fat crackers (like graham crackers); ready-to-eat cereal; and whole-grain bread with low-fat cheese, peanut butter, or lean meat. Even pizza can be lower in fat and saturated fat when

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made with low-fat cheese on an English muffin or low-fat crackers. Remember to leave off the pepperoni, sausage, and extra cheese toppings.

Sweets and snacks often are high in saturated fat, cholesterol, and calories. Commercial cakes, pies, cookies, cheese crackers, and some types of chips are examples of such foods. Once again, the key is to read labels carefully. Choose those that contain primarily unsaturated fats and are low in total fat and calories.

Candy made mostly of sugar (for example, hard candy, gum drops, candy corn) has very little or no fat. It can be a snack now and then. Other candies, especially chocolate, should be limited because they are high in saturated fat.

If your child likes to eat pies, cakes, or cookies, try some tasty alternatives to the high-saturated fat and high-cholesterol types. Fig bars, ginger snaps, graham crackers, homemade cake and cookies made with vegetable oils and egg whites or substitutes, or angel food cake are all options. New baked goods have been developed which contain no cholesterol and very little fat. Some items, like frozen dairy desserts and puddings, are even made with fat substitutes. Even though these new products may be low in saturated fat and cholesterol, they are not always low in calories. Pay attention to serving sizes, especially for children who are overweight.

Remember, most desserts can be made at home. Substitute unsaturated oil or margarine for butter and lard, skim milk for whole milk, and egg whites or substitutes for egg yolks. This

Read Food Labels

Many foods have labels that tell you how much saturated fat and cholesterol they have. Did you know that even low-fat foods can be high in cholesterol? And some products may not contain cholesterol but are still high in fat and saturated fat. Make a habit of reading food labels to help you select foods low in both saturated fat and cholesterol as shown below.

Nutrition Facts	
Serving Size	1 tbsp.
Calories	94
Calories from fat	72
Total Fat	8 g
Saturated fat	2 g
Cholesterol	0 g
Total Carbohydrate	3 g
Protein	4 g

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reduces their saturated fat and cholesterol, although total fat remains high. If your child has a weight problem, they should be eaten only once in a while. For snacks, try instead a piece of fruit, some vegetable sticks, unbuttered popcorn, or breadsticks.

Changing Eating Patterns Takes Time

All of the changes suggested above don't have to happen at once. Take it day by day. Aim for the target of change: less saturated fat, total fat, and cholesterol in your child's diet each day. This is especially important if your child has a high blood cholesterol level.

The first step is to look at your child's current eating pattern and begin to plan alternatives. (See "Take a Look" at the end of the booklet.) Write down a typical day's menu for your child. Is your child eating too many high-fat foods? Is your child eating from all the food groups?

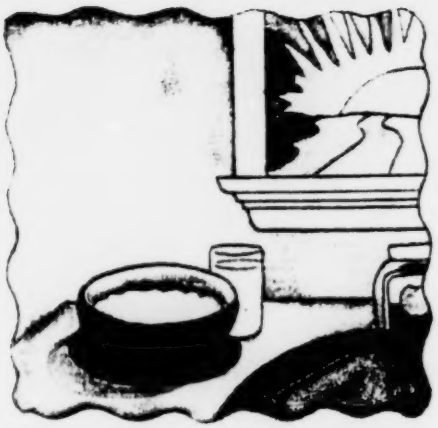
Don't try to cut out all the high-saturated fat and high-cholesterol foods at one time. Instead, try to substitute one or two more appropriate foods each day. If your child rarely eats foods high in saturated fat, these foods once in a while won't raise your child's blood cholesterol level. If you expect a high-saturated fat, high-cholesterol day, have your child eat a low-saturated fat, low-cholesterol diet the day before and the day after.

Changing eating patterns takes time. Start with easy-to-do changes followed by harder ones. For example, instead of limiting pizza, try pizza with vegetables and low-fat cheese. Make "lasting" changes rather than rapid changes that will last only a short time. Soon enough your child will be eating in a way that is lower in saturated fat and cholesterol.

Heart-Healthy Meals and Snacks

Heart-Healthy Meals Can Be Fun and Taste Good

Children as they get older, especially girls, may often skip breakfast. It is important to begin the day with a good breakfast. Breakfast is an easy meal to introduce good-tasting heart-healthy foods.



- Serve toast (whole-grain types), English muffins, bagels, and hot or cold cereal with skim milk. These are quick and easy to prepare.

- Serve unsweetened or barely sweetened cereals as often as you can. Adding fruit to unsweetened cereal makes it special, and at the same time, increases nutrients and fiber without adding fat.

- For special events or weekend treats, try pancakes, muffins, or French toast made with egg whites or egg substitutes and skim milk. Add some sweet syrup or fruit sauce, neither of which contains fat, to make it more appealing to children.

- For a more hearty breakfast, add some low-fat meat such as sliced poultry or lean ham to a bagel or an English muffin.

Choosing lunch at school gives children the chance to make the right food choices for themselves. Packing a lunch offers them the chance to plan their own heart-healthy meals. Whether your child buys a school lunch or takes a packed lunch, discuss some tips for eating right. Try some of these:

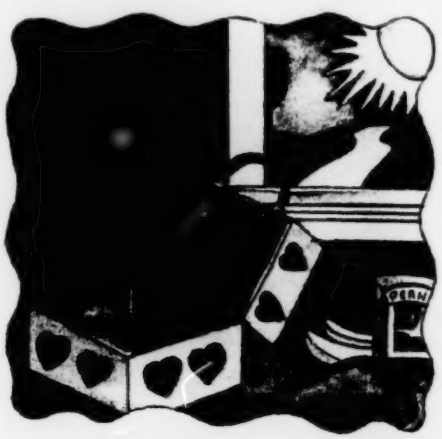
- Sliced turkey, lean roast beef, chicken, or tuna fish are good choices for lower-fat sandwiches. Even add a bit of sliced processed low-fat cheese.

- Peanut butter and jelly is also okay, especially on whole grain bread. For more nutritional punch, create peanut butter and mashed bananas with raisins or carrots.

- Whole-wheat, rye, pumpernickel, or bran breads add more fiber to a sandwich and taste good too.

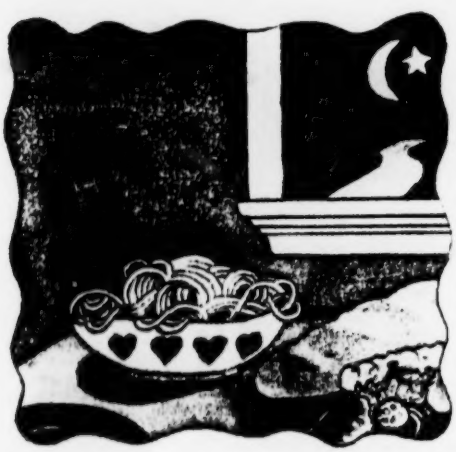
- Try some of last night's pasta salad or cold baked chicken with herbs for a switch from sandwiches for lunch.

- Pack some snacks such as apples, bananas, grapes, raisins, nuts, or seeds. Also, put in prepackaged juices or other types of unsweetened beverages.



Some lunches provided at school may be high in saturated fat and cholesterol. Check the menu in advance. If low-fat choices are not available on a certain day, you and your child can pack a lunch. However, if your child's school never offers heart-healthy choices, try to arrange that it does so. Work with your PTA or school system to promote a school lunch program which offers heart-healthy choices.

Dinner may pose a problem for busy parents who have little time to shop and cook. Many rely on high-fat convenience foods like creamy, canned soups and boxed macaroni and cheese dinners. Replace these with foods lower in saturated fat and cholesterol that are quick and easy to prepare:



- Chicken breasts, fish fillets, and lean hamburgers take little time to prepare. Broil, bake, or microwave, rather than fry.
- Vegetables can be steamed or microwaved in minutes.
- Vegetable stew can be made with rice or pasta and shavings of lean meat instead of a lot of chunks. Meat contributes protein, vitamins, and minerals like iron. Children should not avoid eating meat. It is a good idea to "stretch" meat by using it in a combination dish, like stew.
- Many ethnic dishes can also be low in fat and quick and easy to prepare. Try Chinese stir fries of rice, peppers, mushrooms, and water chestnuts with thin strips of beef or chicken. Pizza can be made with low-fat cheese and vegetable toppings rather than sausage or pepperoni.
- Some TV dinners and other convenience meals can be low in saturated fat and cholesterol. Look for dinners that provide foods from different food groups including vegetables, fruits, and breads. Choose less often those that contain battered, fried, or deep fried items. Read the labels and compare. Choose the one lowest in total fat and saturated fat.

Snacking Is Okay

Snacking is not a bad word. What your child eats matters more than when it is eaten. Children are growing quickly and need calories. Young children's appetites and stomachs may be small, so they may tend to eat smaller amounts at one time. They may not be able to eat enough calories at a meal to meet their energy needs. So, snacks may need to be part of their eating pattern. See the sample menus on pages 38-40.

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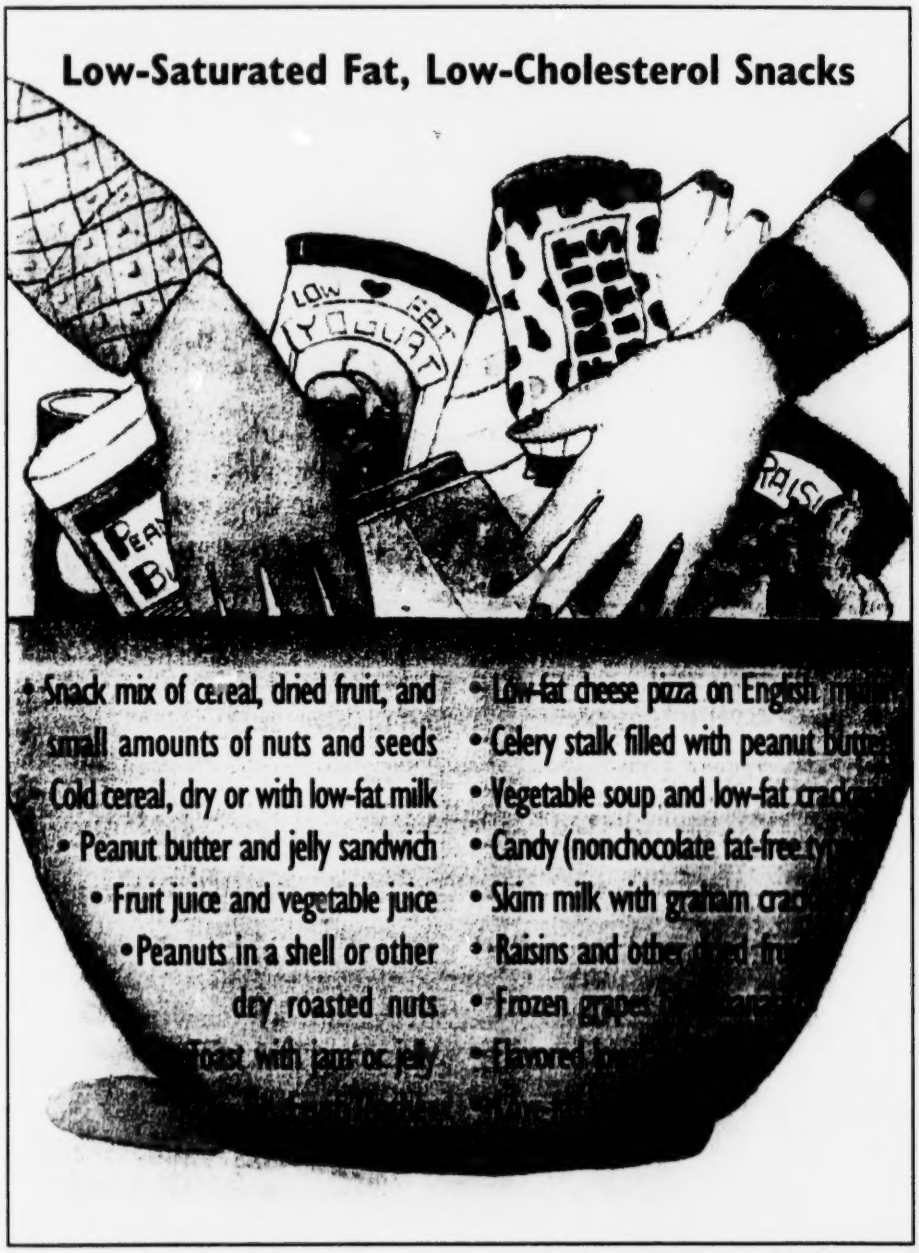
Plan for snacks low in saturated fat and cholesterol.

Preteens and teenagers also may need extra nutrition and calories to get them through their growth spurts or athletic programs. Snacks can help meet their energy needs without being high in saturated fat and cholesterol. Instead, they can be rich in carbohydrates and fiber.

Plan for snacks. We all tend to eat what's handy. So, stock your kitchen with nutritious, low-saturated fat, low-cholesterol snack foods from all of the food groups. See below for some suggestions.

Let the snack foods you serve at home be the "good eating guide" when your child is away from home. Some of these snacks are now also found in vending machines. Your child just needs to choose them.

Low-Saturated Fat, Low-Cholesterol Snacks


• Snack mix of cereal, dried fruit, and small amounts of nuts and seeds
• Cold cereal, dry or with low-fat milk
• Peanut butter and jelly sandwich
• Fruit juice and vegetable juice
• Peanuts in a shell or other dry roasted nuts
• Low-fat cheese pizza on English
• Celery stalk filled with peanut
• Vegetable soup and low-fat
• Candy (nonchocolate fat-free
• Skim milk with graham
• Raisins and other
• Frozen
• Flavored

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Like anything else, snacking can be overdone. If snacking leads to eating too much, it can lead to weight gain. Or, if snacks come mainly from the "Sweets and Snacks" group, your child may not get enough of the nutrients provided by other foods.

Recipes and Healthy Fast Foods

Most Families Have Favorite Recipes

There is no reason to stop using your favorite recipes and cookbook. You can change tried and true recipes to low-saturated fat, low-cholesterol recipes. The tips for substitutes in the table below will help you get started.

Experiment! find the recipes that work best with these changes.

Substitutes

In place of	Use
1 tablespoon butter	1 tablespoon margarine or ¾ tablespoon oil
1 cup shortening	⅔ cup vegetable oil
1 whole egg	2 egg whites
1 cup sour cream	1 cup yogurt (plus 1 tablespoon cornstarch for some recipes)
1 cup whole milk	1 cup skim milk

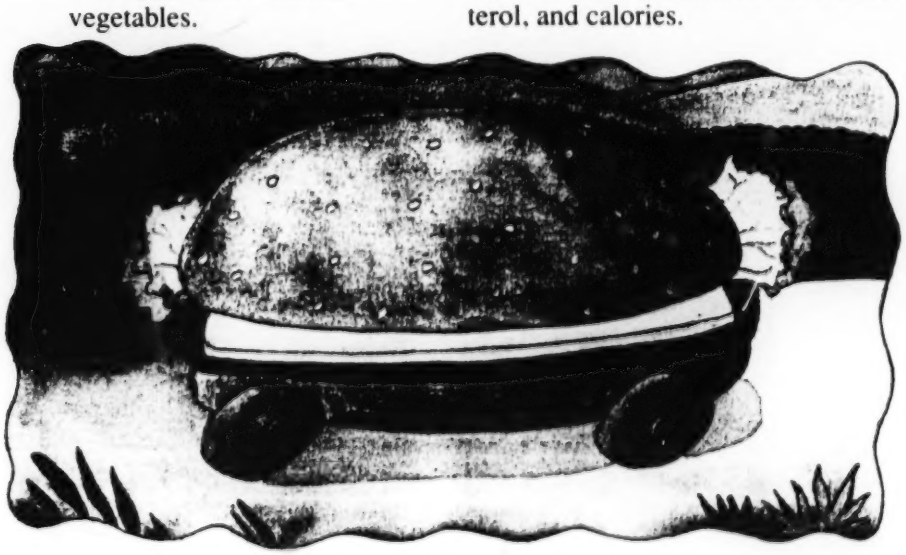
Convenience Foods and Fast-Foods Can Be Heart Healthy

Stopping now and then at a fast-food restaurant with friends or family does no harm. However, these days children may be eating fast and convenience foods three or more times a week. By serving heart-healthy meals and snacks at home, you can plan for fast-food meals once in a while. Also, some fast and convenience foods are now lower in saturated fat and cholesterol than they used to be. See the table on the right for a comparison of some of children's fast food favorites.

Here are some ways to avoid eating too much saturated fat and cholesterol while enjoying convenience. Try some of these tips:

- Order a small plain hamburger. It is lower in fat than fried or battered fish and chicken or anything with cheese.
- Try lean roast beef and grilled or broiled chicken sandwiches or pita pockets filled with small pieces of meat and vegetables.
- Select the small serving; order the regular hamburger instead of the jumbo.
- Order a plain baked potato instead of French fries.
- Create a salad at the salad bar. Limit toppings of cheese, fried noodles, bacon bits, and salads made with mayonnaise. Also, limit salad dressings that add saturated fat and cholesterol.
- Try ethnic cuisine—many such as Chinese and mid-Eastern are becoming fast food.
- Choose pizza with vegetable toppings such as mushrooms, onions, or peppers. Avoid extra cheese, pepperoni, or sausage.
- Create convenience foods at home by freezing low-fat casseroles, soups, and leftovers in single serving sizes.

The table of fast food meals on page 36 shows how some of these small changes can add up to big savings in saturated fat, total fat, cholesterol, and calories.



Fast Food Favorites: A Comparison

Product	Saturated Fat (grams)	Dietary Cholesterol (milligrams)	Total Fat (grams)	Total Calories
Cheese pizza, 1 slice	2	9	3	140
Pepperoni pizza, 1 slice	2	14	7	181
Bean burrito	3	3	7	224
Beef and cheese burrito	5	85	12	317
Hamburger	4	36	12	275
Cheeseburger	6	50	15	320
French fries, regular	4	0	12	235
French fries, large	6	0	19	355
Grilled chicken breast sandwich	1	60	9	310
Chicken nuggets, 6 pieces	6	62	17	290
Beef hot dog, on bun	6	27	15	265
Vanilla low-fat frozen yogurt cone	0	2	1	105
Vanilla soft serve ice milk cone	4	28	6	164
Vanilla shake	5	32	8	314
Vanilla ice cream, 1 cup (10% fat)	9	59	14	269
Cola, 12 oz.	0	0	0	151

Source: USDA Handbook 8-21; individual manufacturers for items not available from USDA.

Sample Fast Food Meals: How Small Changes Add Up

Meal	Saturated Fat (grams)	Dietary Cholesterol (milligrams)	Total Fat (grams)	Total Calories
Typical meal #1 Chicken nuggets Large French fries Vanilla shake	17	94	45	959
Lower-fat choice #1 Grilled chicken breast sandwich ½ small French fries 12 oz. cola Low-fat frozen yogurt cone	3	62	16	684
Typical meal #2 Cheeseburger Large French fries 12 oz. cola Vanilla ice milk cone	16	78	40	990
Lower-fat choice #2 Hamburger ½ small French fries 12 oz. cola Low-fat frozen yogurt cone	6	38	19	649

Sample Menus: Step-One and Step-Two Diets

Putting It All Together—Sample Menus

The differences between the eating pattern suggested for all healthy Americans, the Step-One Diet, and Step-Two Diet appear to be small. BUT they are very important for lowering your child's blood cholesterol level. All of the small changes add up to improve your child's blood cholesterol level.

Take a look at the sample menus. There are three sets of menus, each set for a different age range. The samples of the suggested eating pattern, Step-One, and Step-Two Diets have the same number of calories as the sample menu of the current eating pattern. However, they have much less saturated fat, total fat, and cholesterol. And, the sample menus show that because the fat in the current eating pattern was so calorie-rich, the new eating patterns actually allow your child to eat more food!

The menus show how you can change a child's current eating pattern to one that is lower in saturated fat, total fat, and cholesterol, and be consistent with the Step-One and Step-Two Diets. (The nutrient analysis for each sample menu is provided on page 41.)

Look across the menus and compare the highlighted items.

- Some items show simple changes in the type of food offered which lowers the saturated fat and cholesterol content of the menu. For example, across the sample menus for breakfast, you will see a change from whole milk to 1% milk to skim milk. Likewise, the dinners in sample menu 2 show a change from fried chicken to skinless broiled chicken, and change the butter on the vegetables to regular or tub margarine.

- Other changes in the actual foods offered can also help to reduce saturated fat and cholesterol. For example, the lunches in sample menu 2 show replacing a cheeseburger with a hamburger for Step-One, and with a tuna sandwich made with water-pack tuna for Step-Two. Sample menu 3 suggests choosing a roast beef sandwich instead of a beef hot dog with chili for lunch, and chicken cacciatore (made with skinless chicken and pasta) instead of lasagna (made with regular ground beef and whole milk mozzarella) for dinner.

You may notice that the Step-Two Diet calls for adding more margarine as tub margarine, which is highly unsaturated. By using only skim milk, low-fat cheese, and the leanest meat on the Step-Two Diet, you have removed many hidden sources of saturated fat. Since the Step-Two Diet has the same amount of total fat and calories as the other eating patterns it's okay to replace these saturated fats with more tub margarine.

As you can see, learning to eat the heart-healthy way means choosing more foods low in saturated fat and cholesterol. The appendix gives you more ideas of foods to choose. It's important to remember that you can have variety within any given day.

Sample Menus 1

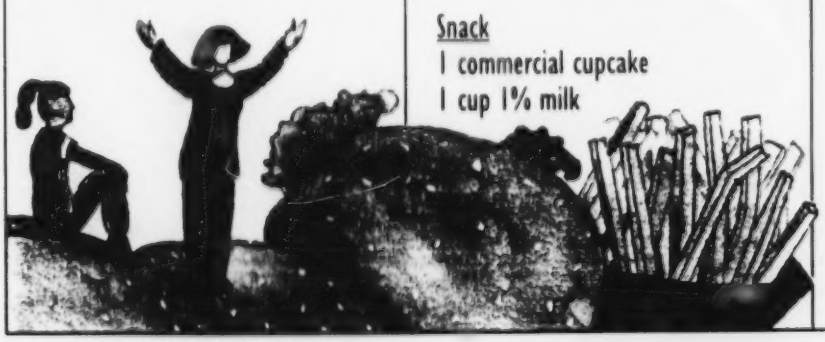
With School Lunch for Children 7 to 10 Years

Current Eating Pattern	Suggested Eating Pattern or Step-One Diet	Step-Two Diet
Breakfast ½ cup orange juice 1 packet oatmeal with maple and brown sugar 1 cup whole milk	Breakfast ½ cup orange juice 1 packet oatmeal with maple and brown sugar 1 cup 1% milk	Breakfast ½ cup orange juice 1 packet oatmeal with maple and brown sugar 2 tsp. tub margarine 1 cup skim milk
School Lunch oven fried chicken with skin ½ cup mashed potatoes ½ cup green beans with butter ½ canned pear 1 cup whole milk	School Lunch oven fried chicken with skin ½ cup mashed potatoes ½ cup green beans with butter ½ canned pear 1 cup 2% milk	Bag Lunch ham sandwich: 2 slices bread 2 oz. lean ham 2 tsp. mayonnaise, lettuce, tomato, pickle 1 medium banana 1 cup skim milk
Snack ham sandwich: 2 slices bread 1 oz. ham luncheon meat lettuce, tomato, pickle ½ tbsp. mayonnaise 1 medium cola	Snack turkey sandwich: 2 slices bread 1-½ oz. turkey luncheon meat 1 oz. low-fat cheese lettuce, tomato, pickle 1 tsp. mayonnaise 1 medium cola	Snack turkey sandwich: 2 slices bread 1-½ oz. turkey luncheon meat 1 oz. low-fat cheese lettuce, tomato, pickle 1 tsp. margarine or tub margarine 1 medium cola
Dinner 1 serving tuna macaroni casserole ½ cup carrots and peas 1 small roll ½ cup applesauce water or noncaloric beverage	Dinner 1 serving tuna macaroni casserole ½ cup carrots and peas 1 small roll 1 tsp. margarine ½ cup applesauce water or noncaloric beverage	Dinner 1 serving tuna macaroni casserole ½ cup carrots and peas 2 tsp. margarine ½ cup applesauce water or noncaloric beverage
Snack 1" x 2" chocolate brownie 1 cup whole milk	Snack 4 medium commercial oatmeal cookies 1 cup 1% milk	Snack 4 medium homemade oatmeal cookies, made with tub margarine 1 cup skim milk

Sample Menus 2

With Fast Food Lunch for 11 to 14 Year-Old Girls

Current Eating Pattern	Suggested Eating Pattern or Step-One Diet	Step-Two Diet
Breakfast 1 cup orange juice 1 cup presweetened cereal **1 cup whole milk**	Breakfast 1 cup orange juice 3/4 cup corn flakes **1 cup 1% milk**	Breakfast 1 cup orange juice 3/4 cup corn flakes 1/2 English muffin 1 tsp. margarine **1 cup skim milk**
Fast Food Lunch **1 cheeseburger** 1 regular order French fries 3 packets catsup 1 small cola	Fast Food Lunch **1 hamburger, quarter pound lettuce, tomato, onions** 1 regular order French fries 1 packet catsup 1/2 box animal crackers 1 medium cola	Bag Lunch **tuna sandwich:** **2 slices bread** **3 oz. water pack tuna** **tomato, celery, relish** **4 tsp. mayonnaise** 3/4 oz. bag pretzels 4 homemade oatmeal cookies 1 medium cola
Snack 2 medium ginger snaps water or noncaloric beverage	Snack 4 multi-grain, low-fat crackers 3/4 oz. low-fat cheese water or noncaloric beverage	Snack 4 multi-grain, low-fat crackers 3/4 oz. low-fat cheese water or noncaloric beverage
Dinner **1 breaded and fried chicken breast with skin** **1 boiled potato with butter** **1/2 cup broccoli with butter** 1 small roll 1 tsp. margarine 1 cup iced tea	Dinner **3 oz. broiled chicken breast, no skin** **1 boiled potato with margarine** **4 broccoli spears with margarine** 4 tomato slices 1 slice bread 1/2 cup strawberries 1 container nonfat yogurt water or noncaloric beverage	Dinner **3 oz. broiled chicken breast, no skin** **1 boiled potato with tub margarine** **4 broccoli spears with tub margarine** 4 tomato slices 1 slice bread 2 tsp. margarine 1/2 cup strawberries 1 container nonfat yogurt water or noncaloric beverage
Snack 3/4 oz. American cheese 4 crackers 1/2 cup fruit drink	Snack 1 commercial cupcake 1 cup 1% milk	Snack 1 homemade cupcake 1 cup skim milk



Sample Menus 3

With Fast Food Lunch for 15 to 19 Year-Old Boys

Current Eating Pattern	Suggested Eating Pattern or Step-One Diet	Step-Two Diet
Breakfast 1 cup orange juice ½ cup granola cereal 1 cup whole milk	Breakfast 1 cup orange juice ¾ cup presweetened corn flakes 1 bagel 1 tsp. margarine 1 cup 1% milk	Breakfast 1 cup orange juice ¾ cup presweetened corn flakes 1 bagel 2 tsp. margarine 1 cup skim milk
Fast Food Lunch 1 beef hot dog on bun with chili 1 oz. potato chips 1 medium cola	Sandwich Shop roast beef sandwich 2 cups tossed salad 2 tbsp. Thousand Island dressing 1 oz. bag corn chips 1 medium cola	Sandwich Shop roast beef sandwich 2 cups tossed salad 3 tbsp. Thousand Island dressing 1 medium cola
Snack 2 oz. chocolate candy bar 1 medium cola	Snack ham and cheese sandwich: 2 slices bread 1 oz. low-fat ham 1 oz. low-fat cheese 2 tsp. mayonnaise, lettuce, tomato, pickle 4 commercial oatmeal cookies 1 cup orange juice	Snack turkey and cheese sandwich: 2 slices bread 1 oz. turkey breast 1 oz. low-fat cheese lettuce, tomato, pickle 2 tsp. mayonnaise ¾ oz. bag pretzels 5 gingersnaps 1 cup orange juice
Dinner 1 serving beef lasagna (4"x3") 2 cups tossed salad 3 tbsp. Thousand Island dressing 1 slice French bread 2 brownies (1"x2") 1 cup whole milk	Dinner 3 oz. chicken cacciatore ½ cup green beans 1 cup white rice 1 tsp. margarine 1 slice bread 15 grapes 1 cup nonfat yogurt with fruit flavor water or noncaloric beverage	Dinner 3 oz. chicken cacciatore ½ cup green beans with tub margarine 1 cup rice with tub margarine 1 slice bread 1-½ tsp. margarine 15 grapes 1 cup nonfat yogurt with fruit flavor water or noncaloric beverage
Snack 1 cup frozen yogurt 1 medium cola	Snack 6 homemade peanut butter cookies 1 cup 1% milk	Snack ⅛ of 9" homemade apple pie 1 cup skim milk

Nutrient Analysis

Age	Nutrients	Current Eating Pattern	Suggested Eating Pattern or Step-One Diet	Step-Two Diet
7 to 10 Year-Old Children	Calories	2,008	2,005	1,966
	Total fat (% of calories)	35	29	29
	Saturated fat (% of calories)	15	11	7
	Cholesterol (milligrams)	261	188	126
11 to 14 Year-Old Girls	Calories	2,219	2,240	2,248
	Total fat (% of calories)	35	29	27
	Saturated fat (% of calories)	15	10	6
	Cholesterol (milligrams)	264	188	159
15 to 19 Year-Old Boys	Calories	2,998	3,026	2,993
	Total fat (% of calories)	36	30	29
	Saturated fat (% of calories)	15	9	7
	Cholesterol (milligrams)	258	224	157

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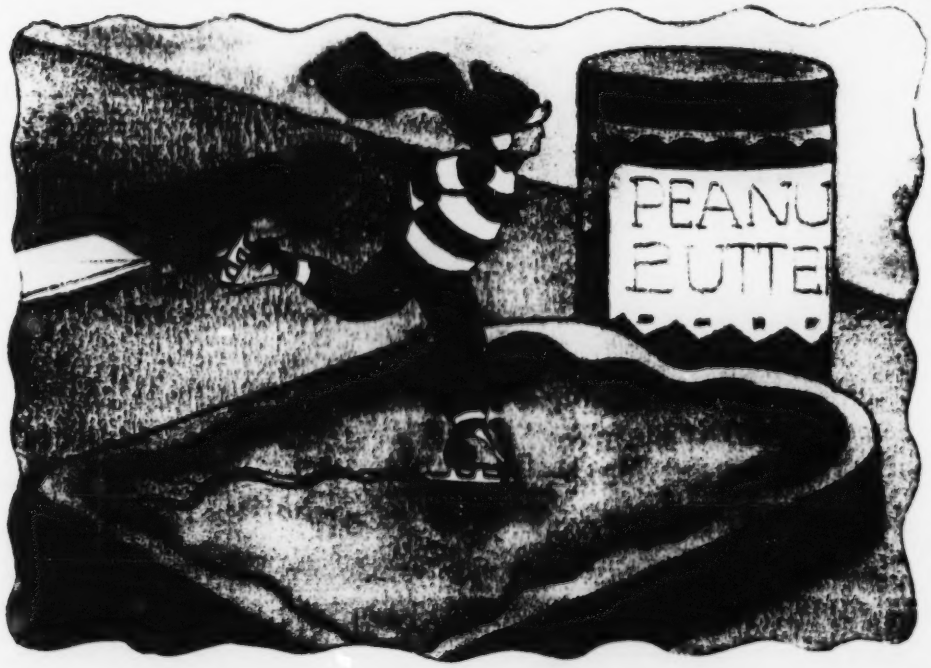
You Can Lead Your Child To Food, But You Can't Make Him Eat

The most carefully planned heart-healthy meal is no good if your child does not eat it. Younger children may just be picky eaters going through a stage. Older children may have "reasons" for being picky. Children can be encouraged to eat foods lower in saturated fat and cholesterol but should not be made to eat them. You need to be creative and give them choices:

- Let your child help fix the meal. Helping makes eating more fun.
- Make the meal attractive. For younger children, make a face on top of casserole or cut foods with a cookie cutter to make fun shapes.
- If your child doesn't like a certain lower fat food, serve it with something your child does like. Disguise an unliked food in other foods. For example, add the food to casseroles or soups, or bake it into muffins or quick breads.
- Above all, be a good role model yourself — let your eating patterns be the example for others.

Choosing to eat in a heart-healthy way is a family affair. It becomes even more important if someone in the family has high blood cholesterol. If your child has high blood cholesterol, talk to them about it. They may not understand why they need to eat this way and may be afraid of sudden changes. Encourage children to eat for the health of their heart, yet don't make too big a deal about it. If your child is growing well, he or she is probably getting enough to eat. So don't worry about it. If your child gets stuck on one food or refuses to make any changes, discuss the problem with your doctor or a dietitian.



HELP!

If you want more help in planning low-saturated fat, low-cholesterol eating patterns, visit a registered dietitian or other qualified nutritionist. They can help you design an eating pattern suited to your own child's needs and likes. Dietitians may be found at local hospitals, and state and district chapters of the American Dietetic Association (ADA). The ADA keeps a list of registered dietitians. By calling the Division of Practice (312-899-0040), you can request names of dietitians in your area. Others can be found in public health departments, health maintenance organizations, cooperative extension services, and colleges. You can also call the ADA's consumer nutrition hotline at 800-366-1655.

Dietitians can help you by giving further advice on shopping and preparing foods, eating away from home, and changing your child's eating habits to help maintain the new eating pattern. Their skill will help you and your child set short-term targets for change. This will help your child reach the blood cholesterol goal without greatly changing your family's eating patterns and lifestyle.

The National Cholesterol Education Program has produced booklets for children of different age groups: ages 7 to 10, 11 to 14, and 15 to 18. These booklets are designed to help children understand blood cholesterol levels and the need to eat in a way that is low in saturated fat, total fat, and cholesterol. To order these booklets and others for adults with high blood cholesterol, contact:

National Cholesterol
Education Program
NHLBI Information Center
P.O. Box 30105
Bethesda, Maryland 20824-0105

APPENDICES

Foods To Choose and Decrease

Eating in a way that is lower in saturated fat, total fat, and cholesterol is a balancing act: eating the variety of foods to supply the nutrients your child needs without too much saturated fat and cholesterol or extra calories.

One way to assure variety and a balanced diet is to choose foods every day from each of the food groups. You may question why children would need to choose foods from the fats and oils group and the sweets and snacks group. They don't have to since the nutrients provided by the foods in these groups are easily provided by other foods. But, it is likely that they will choose foods from these groups. This chart is meant to be a guide in making those choices.

Choose different foods from within groups, too, especially foods low in saturated fat and cholesterol (the choose column). Foods in the decrease column are higher in saturated fat and cholesterol.

The number of servings should be adjusted to promote your child's growth and development and to maintain or achieve your child's healthy weight. As a guide, examples of the number of servings needed from each food group to achieve the eating patterns for the Step-One and Step-Two Diets are listed. Common serving sizes are listed next to the different food types in the choose column.

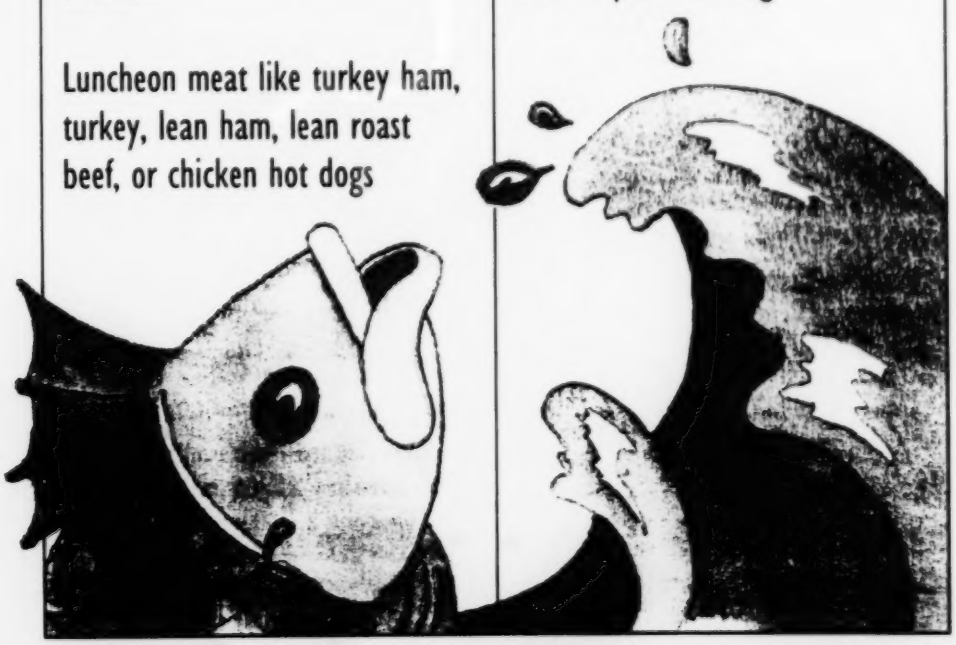
Meat, Poultry, Fish, and Shellfish

Recommended Ounces Per Day

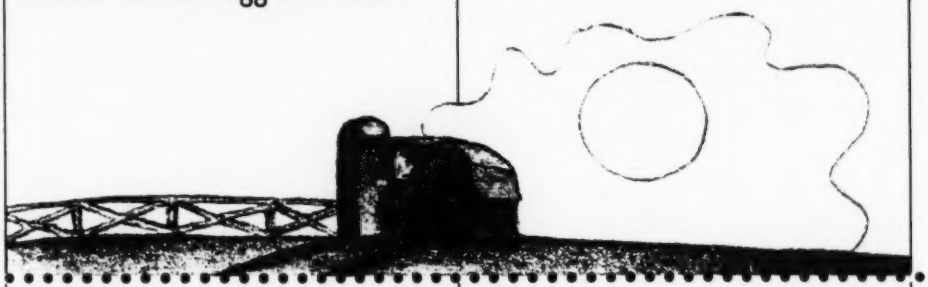
Age	Step-1	Step-2*
2-3	2	2
4-6	5	5
7-18	6	6

*Note: Step-2 Diet allows only the leanest cuts of meat, fish, and poultry.

Choose	Decrease
Lean cuts of meat with fat trimmed, like: Beef—round, sirloin, chuck, loin Lamb—leg, arm, loin, rib Pork—tenderloin, leg, shoulder (arm or picnic) Veal—all trimmed cuts except ground Poultry without skin Fish Shellfish Luncheon meat like turkey ham, turkey, lean ham, lean roast beef, or chicken hot dogs	Fatty cuts of meat, like: Beef—regular ground, short ribs, corned beef brisket Pork—spareribs, blade roll Bacon, sausage Organ meats, like liver, kidney, sweetbread, brain Poultry with skin, fried chicken Fried fish and shellfish Regular luncheon meat, like bologna, salami, sausage, and beef or pork hot dogs



Choose	Decrease
Egg whites (2 whites equal 1 whole egg in recipes) Cholesterol-free egg substitutes	Egg yolks beyond suggested number of servings per week (includes egg used in cooking)



Eggs

Recommended Servings Per Week

Age	Step-1	Step-2
2-3	3	2
4-6	3	2
7-18	3	1

Choose	Decrease
Milk (1 cup)—skim milk, 1% milk (fluid, powdered, evaporated); buttermilk Yogurt (1 cup)—nonfat or low-fat yogurt; yogurt beverages Cottage cheese (½ cup)— low-fat, nonfat, or dry curd (0 to 2% fat) Cheese (1 oz.)—low-fat cheeses labeled no more than 6 grams of fat per ounce on Step-1 (no more than 2 grams of fat per ounce on Step-2) Frozen dairy dessert (½ cup)—ice milk, frozen yogurt (low-fat and nonfat)	Whole milk (fluid, evaporated, condensed); 2% low-fat milk; imitation milk Whole-milk yogurt; custard-style yogurt; whole-milk yogurt beverages Cottage cheese (4% fat) High-fat cheese, like American, blue, brie, cheddar, colby, edam, monterey jack, parmesan, Swiss, Neufchatel Cream cheese Ice cream Cream, half-&-half, whipping cream, nondairy creamer, whipped topping, sour cream

Dairy Products

Recommended Servings Per Day

Age	Step-1	Step-2*
2-3	3	3
4-6	3	3
7-18	4	4

*Note: Step-2 Diet allows only milk and yogurt with 1% milk fat or less, and cheeses with not more than 2 grams of fat per ounce.

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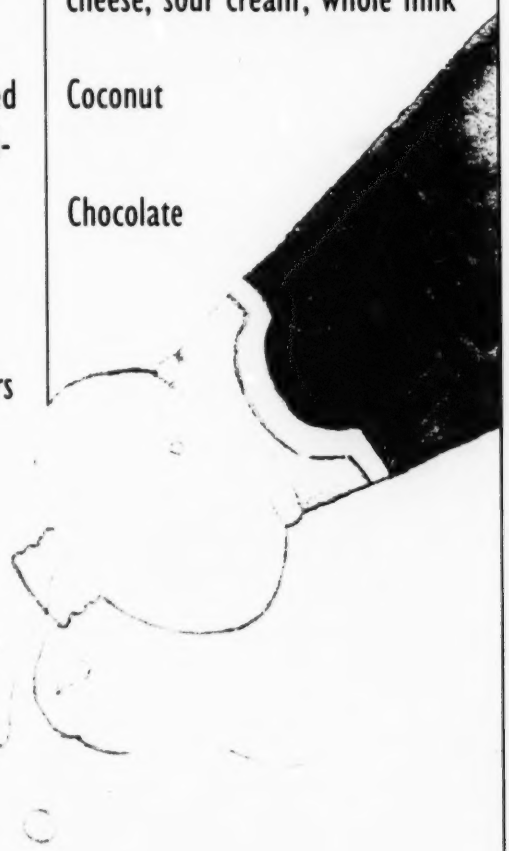
Fats and Oils

Recommended Servings Per Day

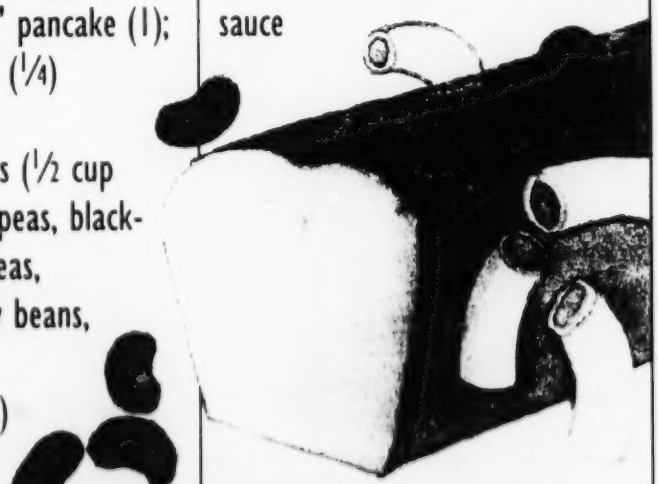
Age	Step-1	Step-2*
2-3	4	5
4-6	5	6
7-10	5	7
11-14		
males	7	9
females	5	8
15-18		
males	10	12
females	5	8

*Note: Step-2 Diet allows tub margarines and oils very low in saturated fats. In order to keep total calories from fat at about 30%, while reducing saturated fats, Step-2 Diet allows more servings of unsaturated fats.

Choose	Decrease
Unsaturated oils (1 tsp.)—corn, olive, peanut, rapeseed (canola oil), safflower, sesame, soybean	Coconut oil, palm kernel oil, palm oil
Margarine (1 tsp.)—made from unsaturated oils listed above; light or diet margarine (2 tsp.)	Butter, lard, bacon fat, shortening
Salad dressings (1 tbsp.)—dressings made with unsaturated oils listed above: low-fat or oil-free dressings (serving size depends on amount of oil)	Dressings made with egg yolk, cheese, sour cream, whole milk
Seeds and nuts (1 tbsp.)—peanut butter, other nut butters	Coconut
Cocoa powder (as desired)	Chocolate
Olives (5 small)	
Avocado (1/8 of whole)	



Choose	Decrease
Bread (1 slice)—whole grain bread; hamburger and hot dog bun (½); corn tortilla (1)	Bread in which eggs are a major ingredient; croissants
Cereal (1 cup ready-to-eat, ⅓ cup bran or ½ cup cooked)—oat, wheat, corn, multigrain	Granola-type cereals
Pasta (½ cup cooked), like plain noodles, spaghetti, macaroni	Egg noodles and pasta containing egg yolk
Rice (½ cup cooked)	Pasta and rice prepared with cream, butter, or cheese sauces
Low-fat crackers—animal crackers (8); graham (3); saltine-type (6)	High-fat crackers, like cheese crackers, butter crackers, those made with saturated fats
Homemade baked goods using unsaturated oil, skim or 1% milk, and egg substitutes—quick bread (1 slice); 2" biscuit (1); cornbread muffin (1); bran muffin (1); 4" pancake (1); 9" diameter waffle (¼)	Commercial baked pastries, muffins, biscuits, doughnuts, sweet rolls, Danish pastry using saturated fats
Dry peas and beans (½ cup cooked), like split peas, black-eyed peas, chick peas, kidney beans, navy beans, lentils, soybeans, soybean curd (tofu)	Dry peas and beans prepared with butter, cheese, or cream sauce



Breads, Cereals, Pasta, Rice, Dry Peas and Beans

Recommended Servings Per Day

Age	Step-1	Step-2
2-3	5	5
4-6	6	6
7-10	7	7
11-14		
males	9	9
females	8	8
15-18		
males	12	12
females	8	8

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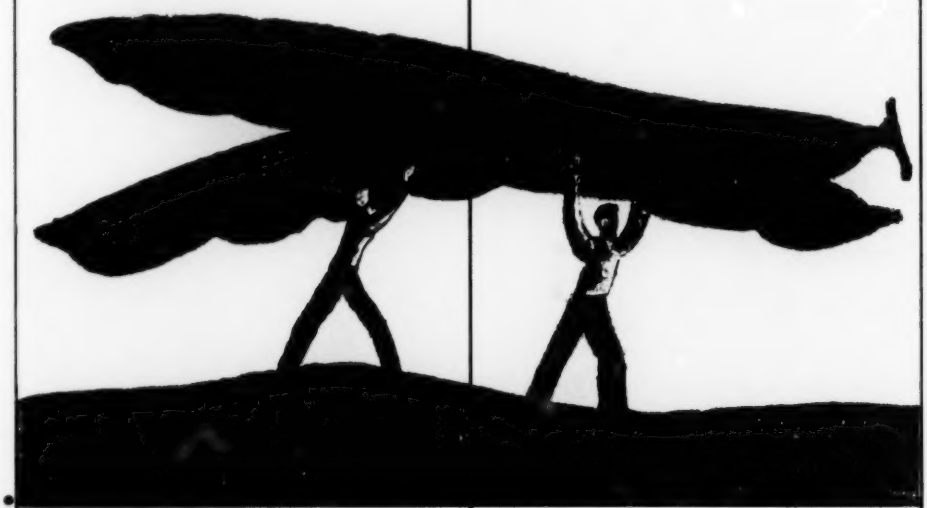
Vegetables

Recommended Servings Per Day

Age	Step-1	Step-2
2-3	3	3
4-6	3	3
7-10	3	3
11-18		
males	4	4
females	3	3

Choose	Decrease
Vegetables (½ cup)—fresh, frozen, or canned	Vegetables prepared with butter, cheese, or cream sauce



Fruits

Recommended Servings Per Day

Age	Step-1	Step-2
2-3	2	2
4-6	3	3
7-10	3	4
11-14	3	3
15-18		
males	5	5
females	3	3

Fruit (½ cup or medium-size piece)—fresh, frozen, canned, or dried Fruit juice (½ cup)—fresh, frozen, or canned	Fried fruit or fruit served with butter or cream sauce

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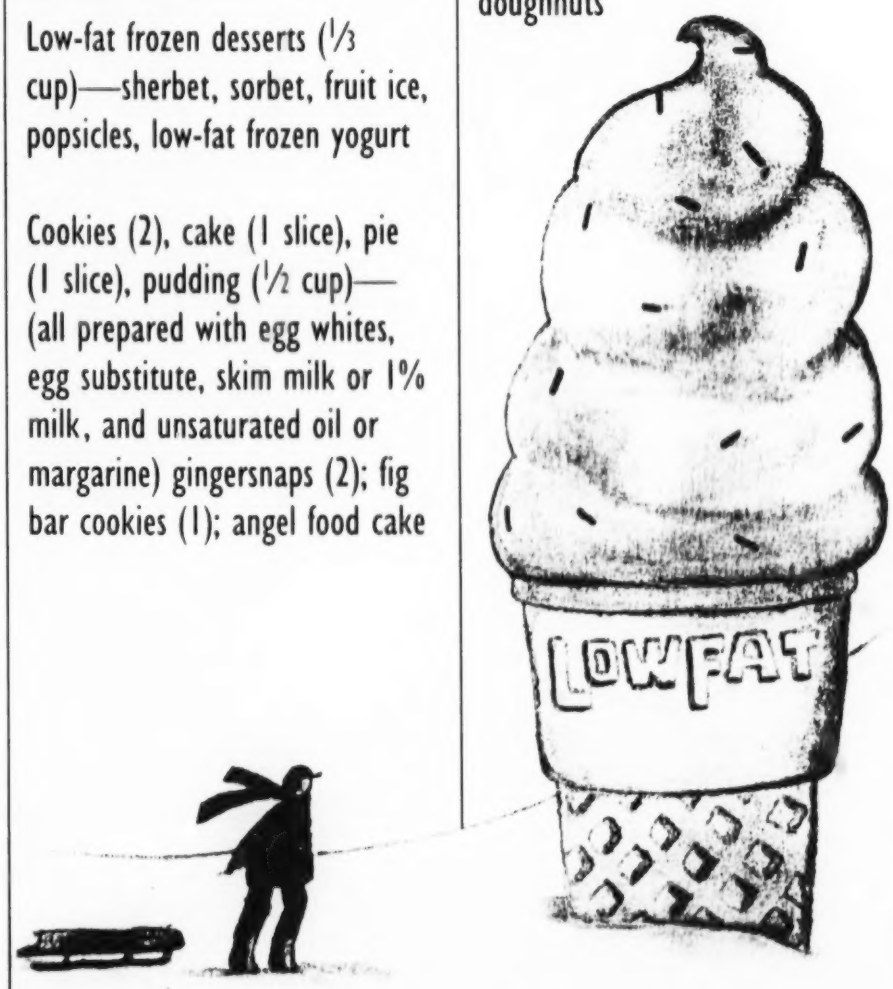
Sweets and Snacks

Recommended Servings Per Day

Age	Step-1	Step-2
2-3	1	1
4-6	2	2
7-10	2	2
11-18		
males	4	4
females	3	3

Choose	Decrease
Beverages (6 fluid oz.)—fruit-flavored drinks; lemonade, fruit punch	Candy made with chocolate, butter, cream, coconut oil, palm oil, palm kernel oil, coconut oil
Sweets (1-½ tbsp.)—sugar, syrup, honey, jam, preserves; candy (¾ oz.) made primarily with sugar (candy corn, gumdrops, hard candy); fruit-flavored gelatin (½ cup)	Ice cream and frozen treats made with cream and whole milk
Low-fat frozen desserts (⅓ cup)—sherbet, sorbet, fruit ice, popsicles, low-fat frozen yogurt	Commercial baked high-fat cookies, cakes, cream pies, doughnuts
Cookies (2), cake (1 slice), pie (1 slice), pudding (½ cup)—(all prepared with egg whites, egg substitute, skim milk or 1% milk, and unsaturated oil or margarine) gingersnaps (2); fig bar cookies (1); angel food cake	



How To Figure Saturated Fat and Total Fat in Grams

Calories	Maximum saturated fat in grams (no more than 10% of calories)	Maximum total fat in grams (no more than 30% of calories)
1,000	11	33
1,200	13	40
1,500	17	50
1,800	20	60
2,000	22	67
2,500	28	83
3,000	33	100

To figure saturated fat in grams—for Step-One Diet

1. Multiply calorie intake by 10%* to get saturated fat calories (1,500 calories x .10 = 150 saturated fat calories)
2. Divide by 9 (fat has 9 calories per gram) to get saturated fat grams (150 saturated fat calories divided by 9 = 17 saturated fat grams)

To figure total fat in grams—

1. Multiply calorie intake by 30% to get total fat calories (1,500 calories x .30 = 450 total fat calories)
2. Divide by 9 (fat has 9 calories per gram) to get total fat grams (450 total fat grams divided by 9 = 50 total fat grams)

*Multiply by 7% for Step-Two Diet.

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Take a Look

What is your child's current eating pattern? Is it low in saturated fat and cholesterol? Does your child get brisk, sustained exercise at least 3 times a week?

To answer these questions, take a look at your child's eating and exercise habits. Use the chart [on the next page] to have your child keep a record of everything he or she eats and drinks (except water) for 3 days. This includes the dressing on the salad, the butter on toast—all the "little" extras. Also, record any exercise.

Keep an accurate record. To do this, you may want your child to record foods right after a meal or snack. This might mean carrying paper and pen in a pocket or pocketbook for 3 days. You could also sit down together after school or work to recall all the foods eaten during the day. Find a method that works best for you and your child.

When the 3 days are over, take a look. Together you and your child can compare what your child ate to the foods to choose and decrease in the appendix. Next to the foods your child wrote down, check off whether they are foods to choose or decrease.

- Are there many foods higher in saturated fat and cholesterol?
- Are there low-fat foods your child would eat instead?

Remind your child of the need to eat in a way that is lower in saturated fat and cholesterol. Discuss options with your child. Let your child join you in planning a grocery list based on what changes may have to be made in the eating pattern. You may want to do this exercise again in several months to see if there appear to be lasting changes.

Exercise, especially aerobic exercise, is important in helping your child lower cholesterol and achieve a healthy weight. Has your child had some aerobic exercise in these 3 days? If your child was getting exercise 3 times a week, it would be likely that on at least 1 day he got some. If not, be sure next week is different.

Keep in mind that your child's eating and exercise habits may reflect yours. Eating right and exercising is a family affair.

	Choose	Day 1	Choose	Day 2	Choose	Day 3
Breakfast						
Lunch						
Dinner						
Snacks						
Exercise						

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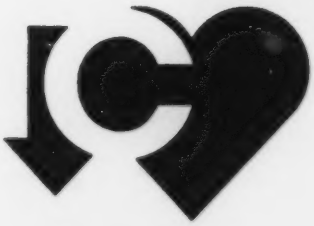

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